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FURTHER EXPERIENCES WITH HALOTHANE

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It is many years since a new anaesthetic agent has claimed so much attention as halothane has done since its introduction in 1956. Granted normal precautions, its general safety is now well established by the large number of successful administrations on record, the striking absence of serious complications of a non-avoidable nature and, even more striking, its wide acceptance for use in patients suffering from grave cardiac disabilities.

Between June 1957 and October 1958, this department, with the generous assistance of Messrs I.C.I. (S.A.) Ltd., made a detailed clinical survey[1] of halothane in a comparatively small series of 540 cases. Caution was the keynote in this trial, but it created sufficient confidence in the agent to justify its release for use by all reasonably experienced personnel. Subsequently, despite the fact that no positive attempt was made to encourage its use, halothane has been safely administered to 5,380 cases in the Johannesburg Hospital, between October 1958 and December 1959. In this series there were no deaths or serious complications attributable to its use. The added experience largely confirmed previous conclusions though, to a certain extent, some early views have been modified.

The pharmacology of halothane has been widely investigated and there is now a large volume of literature on the subject. It is therefore only intended to refer briefly to 2 of its more important aspects, namely (1) the effect of halothane on the heart and blood vessels, and (2) its effect on pulmonary ventilation.

The Effect of Halothane on the Heart and Blood Vessels

The hypotension associated with the administration of halothane has been variously attributed to ganglionic blockade,[2] to a direct antisympathetic action on the smooth muscle of the peripheral vessels,[3] and to depression of the myocardium.[4] With moderate concentrations, the diastolic blood pressure is usually well maintained but the pulse pressure is reduced,[1,5] all of which suggests a diminished ventricular stroke volume. Serious overdose with halothane may rapidly lead to cardiac arrest and, in cases requiring deep anaesthesia, circulatory collapse may supervene before satisfactory relaxation is established. For this reason the administration of strong halothane vapour should never be persisted in if adequate anaesthesia is not readily obtained. There is, however, no evidence that halothane will cause the sudden arrest of a normal heart in the absence of overdose or gross anoxia. Arrhythmias are usually harmless, although when they occur it is advisable to check the vapour concentration and to exclude the presence of anoxia or hypercapnia. The greatest caution should always be observed in using adrenaline in association with halothane anaesthesia.

With concentrations of 1·5% and below, hypotension is seldom a noteworthy feature and, in the rare cases where it is excessive, normal blood pressure can be rapidly restored by the use of atropine or vasopressor agents. Peripheral vasodilatation thus seems to be the main cause of the fall in blood pressure, although in deeper anaesthesia myocardial depression may play a part. A few cases of hypotension after return to the ward have been reported, but they all responded to simple treatment without serious consequences. Johnstone[6] has pointed out that the effect of halothane on the peripheral vessels somewhat resembles that of a spinal anaesthetic. This suggests the need for very careful handling in the immediate postoperative period, particularly in avoiding undue movement or injudicious positioning.

The Effect of Halothane on Pulmonary Ventilation

Unlike ether, halothane is not a reflex respiratory stimulant in light anaesthesia while, in the deeper planes, respiration is depressed. With the Wright spirometer[7] it has been possible to study the effect of halothane on pulmonary ventilation in more detail, and to compare it with that of ether under normal working conditions where anaesthetic concentrations ranged between 1% and 1·5% but at no time exceeded 2%.

It was found that the respiratory rate was usually higher and the tidal volume lower in cases under halothane than in those under ether, but that the difference in the minute volume was not pronounced. When the halothane was stopped at the close of the operation, the usual response was a rise in tidal volume accompanied by a fall in the respiratory rate. This contrasted with the normal reaction to surgical stimulation, when the minute volume, tidal volume and respiratory rate all showed an increase. The tachypnoea (up to 50 per minute or more) associated with surgical stimulation was always accompanied by a marked increase in both minute and tidal volumes. When the stimulus ceased, the minute volume usually decreased more rapidly than the respiratory rate, leading to a reduction in the tidal volume. Any differences between the behaviour of pulmonary ventilation under ether and that under halothane, were insignificant compared to the effects of surgical stimulation or hypercapnia.

It can safely be assumed that normally there is no danger of inadequate pulmonary ventilation during light or moderate halothane anaesthesia if over-sedation is avoided. The tendency to a reduction in the tidal volume suggests the need for an adequate supply of fresh gases when the semi-closed method of administration is in use. Endotracheal intubation also helps in reducing the mechanical dead-space, but pulmonary ventilation adjusts itself physiologically and it was noted that when a facepiece is used the tidal volume increases considerably.

THE PLACE OF HALOTHANE IN ANAESTHESIA

With so many excellent drugs and techniques available for anaesthesia, one would hardly expect an extremely expensive agent to find much favour, and this makes the popularity of halothane with anaesthetists the more remarkable. In the ensuing paragraphs an attempt is made to assess the main factors that have been responsible for its present wide use in this group of hospitals.

Non-inflammability

The increased use by surgeons of various types of equipment that create a fire hazard, coupled with the complex recommendations and regulations relating to precautions against explosions, is rapidly making the use of certain well-tried but potentially explosive anaesthetics an unbearable responsibility. The intrinsic flexibility of inhalation anaesthesia can never be entirely achieved in other techniques and the need for a potent and non-inflammable gas or vapour was acutely felt long before the advent of halothane. In a large proportion of the cases where halothane was chosen the advisability of avoiding an inflammable agent was a major factor.

Potency and Range

With the exception of chloroform, the only non-inflammable inhalation anaesthetics have either a low potency or a very restricted range of safety and utility. Notwithstanding the present wide reliance on intravenous methods, it is often a great advantage to dispense with the need for repeated injections in limbs where the veins have already been overworked; while the numerous assistants that are such a feature of modern surgery sometimes make it difficult or even hazardous to maintain access to a vein. A good inhalation anaesthetic does much to solve these technical problems.

A Non-irritating Vapour

The inhalation of halothane results in rapid loss of consciousness, and surgical anaesthesia is reached within a few minutes. It is non-irritating to the respiratory tract even in concentrations beyond the limits of safety and thus provides a pleasant and convenient method of induction. In this respect, it is sometimes of great value in cases where there is a danger of vomiting or where, because of physical deformities or pathological causes, the development of intractable respiratory obstruction is a hazard.

After a normal intravenous induction and intubation, it is convenient to control the patient with light halothane anaesthesia while he is being prepared for surgery and positioned on the operating table. This enables the anaesthetist to supervise the procedure without interruption and to give his attention where it is most required. The vasodilatation will greatly facilitate the subsequent placing of a Gordh needle.

If the use of an inflammable agent is permissible, a halothane-ether sequence (with or without previous intravenous sodium-thiopentone) gives a rapid, smooth and safe induction.

Postoperative Effects

With judicious use, halothane is a flexible anaesthetic contributing to rapid recovery of reflexes and consciousness. In freedom from nausea, vomiting and other postoperative complications it compares favourably with most other anaesthetics.

Control of Pulmonary Ventilation

Early impressions suggested that the chief scope of halothane was as a main agent for cases in which a moderate depth of anaesthesia was sufficient, but further experience has proved it to be equally valuable when used with muscle relaxants in abdominal and thoracic surgery. This is because with halothane pulmonary ventilation can easily be controlled and the dose of muscle relaxant reduced. Since it has been commonly used in this type of case there has been a great deal less postoperative apnoea and respiratory depression. The use of prostigmin is usually unnecessary.

The analgesic properties of halothane are inferior to those of ether, but because of the low concentration (0·5 - 1%) that is required to keep the patient lightly anaesthetized when muscle relaxants are used there is little depressant effect on the circulation. Halothane has been generally employed in cardiotomies, including the pre- and post-bypass stages of the extracorporeal circulation procedure.

THE ADMINISTRATION OF HALOTHANE

In the present series the semi-closed method has been almost always employed and, with spontaneous breathing, gas flows approximating to normal minute-volume requirements have been used. Where the patient is artificially ventilated through a soda-lime filter, the supply of fresh gases may be considerably reduced (say to half the normal minute volume) without serious prejudice to the efficiency of pulmonary ventilation, thus securing some reduction in the consumption of halothane.

The extremely high cost of the agent has led many anaesthetists to develop techniques involving total (or near-total) re-breathing.[8,9] Two arrangements of the circuit are possible depending on whether the vapourizer is placed outside the breathing system or within it. The principles concerned have been admirably put forward by Newman.[10] When the vapourizer is *outside* the breathing system the danger of overdose is very small. In such a case, should the need to deepen the anaesthesia arise, one would naturally revert to a semi-closed technique until the desired depth was attained. If the vapourizer is *within* the breathing system a satisfactory balance may be established if its efficiency and the fraction of the patient's minute volume that is allowed to pass through it are sufficiently low. Any attempt, however, to deepen the anaesthesia by increasing the proportion of the minute volume that perfuses the vapouriser would demand the greatest care and attention. In the making of adjustments, changes in vapour strength can be effected with greater flexibility and accuracy when the administration is semi-closed. It is felt that techniques in which total re-breathing is approached are not suitable for general use for, apart from the risk of overdose, it is doubtful whether adequate pulmonary ventilation can always be assured with closed systems.

Up to the present only 1 compensated vapourizer has been available in this hospital; and so in the great majority of the present series of administrations a simple vapourizer (Boyle's or Rowbotham's) was used. Although the com-

pensated instrument is both a convenience and a safety factor, care and experience should enable the simpler type to be used without undue risk.

SUMMARY

The administration of halothane in a series of over 5,000 cases has been reviewed. With due appreciation of its dominant pharmacological properties and its high potency, the claims that have been made for it as a safe anaesthetic have been confirmed. The effects of halothane on pulmonary ventilation have been further observed, the conclusion is that hypoventilation is not a serious hazard; in cases showing marked tachypnoea the respiratory exchange was more than adequate. The chief advantages of halothane are its non-inflammability, potency and flexibility, and the ease with which pulmonary ventilation is controlled. It gives a rapid and comfortable induction and is of great value where intravenous methods are inconvenient or contra-indicated. Except on the grounds of economy, closed methods are not favoured.

We wish to thank Prof. O. V. S. Kok, of Pretoria University, for kindly lending the Wright spirometer which was used in the observations on pulmonary ventilation.

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LUNG MASSAGE FOR TOTAL BRONCHOSPASM: A CASE REPORT

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This report concerns a fit although over-weight middle-aged man, who gave no history of asthma, admitting only a chronic "smoker's" cough, and who, after more than an hour of halothane anaesthesia, developed a total bronchospasm which responded dramatically to direct lung compression or 'massage' as recently described by Smolnikoff.[1,2]

A European male aged 38 came to operation for tantalum insertion into a carcinoma of the bladder. He was obese and noticeably anxious, and exhibited the smoker's respiratory syndrome[3] and a classical 'bull-neck'; otherwise he was unremarkable. Premedication consisted of 3 gr. of seconal the night before, and 50 mg. of promethazine with 100 mg. of pethidine intramuscularly 75 minutes before the operation. For induction of anaesthesia 400 mg. of thiopentone was injected, and anaesthesia was maintained with a mixture of 1,000 ml. of oxygen and 2,000 ml. of nitrous oxide per minute, containing 2% halothane vaporized outside a circle absorption system. A face mask was strapped over an oropharyngeal airway. After 10 minutes of uneventful spontaneous respiration the surgeon reported inadequate abdominal relaxation, and partial laryngospasm manifested itself. Endotracheal intubation was performed with a no. 10 cuffed Magill tube and facilitated by 25 mg. of suxamethonium; and, for 2-3 minutes only, controlled respiration yielded adequate operating conditions, with the breathing sounds quite normal. Twenty minutes later relaxation was again inadequate, and then 80 mg. of flaxedil was administered, and controlled respiration was persistently used. After 70 minutes of anaesthesia 1·5 ml. of 4% lignocaine was injected down the endotracheal tube because some resistance to inflation of the lungs, as well as abdominal rigidity, had appeared during the preceding minute or two. Total bronchospasm nevertheless supervened within 3-4 minutes, in spite of the continued use of 2·5% halothane and intermittent positive pressure vigorously applied to the airway. Wheezing had previously indicated bronchiolar constriction, but at no time was there any evidence of liquid in the bronchial tree. While 0·65 mg. of atropine, 0·5 ml. of 1 in 1,000 adrenaline, and 4 ml. of 10% calcium chloride, were being given intravenously, all pulses became impalpable. A thoracotomy was immediately performed while an intravenous infusion of 1,000 ml. of normal saline containing 8 mg. of noradrenaline was started.

The exposed left lung was so distended that it ballooned out of the pleural incision, rendering the thoracotomy virtually impossible without some laceration of the lung — notwithstanding the fact that the endotracheal tube was disconnected entirely from the anaesthetic machine to demonstrate that there was no positive pressure being applied at all. (Gas did actually escape audibly from the endotracheal tube on disconnection for a period that seemed to be at least 30 seconds.) Earlier the cuff was deflated and the tube replaced with another in spite of the difficulty the patient's bull-neck presented to laryngoscopy. Another desperate attempt to move oxygen into the already overdistended lungs again failed completely. Thereupon, bearing in mind Smolnikoff's experience,[1,2] the surgeon was asked to empty the lung as much as possible between his two hands. This promptly and impressively resulted in an uneventfully expanding lung on inflation, and a normally collapsing lung during the intervening phases of zero airway pressure.

The surgeon thought that the heart was beating, but when he opened the pericardium the tip of the left ventricle was seen to contract rhythmically while the rest of the heart remained in standstill. Cyanosis and widely dilated pupils as well as absent carotid impulses, even with the cardiac massage, persisted for 35 minutes altogether before a normal heart beat appeared shortly after the intracardiac injection of 8 ml. of 1 in 10,000 adrenaline and 2 ml. of 10% calcium chloride. A tracheotomy was performed and hypothermia induced postoperatively, but the patient died after 54 hours.

CONCLUSION AND COMMENTS

The case just described confirmed the value of lung 'massage' for complete bronchospasm occurring during anaesthesia. Although the manoeuvre did not save this patient's life, it may well be life-saving in these very rare instances when absolutely fruitless attempts at lung inflation are 'just like pushing against a stone wall'. Judging from an earlier case of my own in 1954, in which a fatal total bronchospasm occurred in an insufficiently relaxed but fit Bantu man during laparotomy when the surgeon unexpectedly lifted the peritoneum, and from those reported by Smolnikoff,[1,2] Gast[4] and Kucher;[5] and the case now described, cardiac arrest always follows exceedingly rapidly once total bronchospasm has become manifest. When this extremely rare contingency has to be faced it therefore appears unwise to rely on the intravenous admini-

stration of drugs, because the venous return must be severely curtailed or, more likely, altogether absent in view of the fact that the thoracic veins are actually collapsed rather than merely depleted. It is well known that excessive inflation of the lungs interferes with venous return even in the open chest by an increase of resistance in the pulmonary bed as well as by tamponade of the heart and great vessels.[6] In any case, no certainly efficacious bronchodilator drug exists.

Quite apart from anaesthesia, death during an attack of asthma is known to occur but not usually, if ever, from total bronchospasm. As Smolnikoff[1,2] points out, there is an essential difference between the bronchospasm of ordinary asthma and the rare total variety seen only in anaesthesia, general or local; the variety associated with anaesthesia is in fact not particularly feared in asthmatics, occurring classically in obese but otherwise healthy middle-aged men.[7] Like 'true' instances of cardiac arrest during anaesthesia there are usually little, if any, premonitory signs. It represents a grave accident inherent in the practice of surgery with anaesthesia, but is fortunately so rare that few anaesthetists encounter it more than once or twice in a lifetime. Heavy smoking, with its associated syndrome[3,8] is a predisposing factor.

Finally, while muscle relaxant drugs for associated skeletal muscular rigidity and bronchodilators like adrenaline, aminophylline and atropine are all valuable in the prevention of bronchial constriction, attention must be given to effective circulation[9,10] with exactly the same urgency as in cases of cardiac arrest from other causes. Once manual compression of the lung has been instituted it will invariably be necessary for the assistant to massage the heart, also using the palms of both hands, if necessary, to produce the absolutely vital *palpable* carotid pulsations. Although all this activity through the chest incision may lead to some inconvenience to the two 'masseurs', and enlargement of the incision, it is entirely feasible. It must always be remembered that interruption of the cerebral circulation is followed within seconds by a loss of consciousness, and within minutes by irreversible changes in the brain.

The most important lesson, however, to be learnt from this case is the need for adequate suppression of the patient's reflex response to stimuli, and the fact that, in spite of numerous claims to the contrary, phenothiazine derivatives do not always provide this; neither does halothane or ether guarantee absence of reflex irritability even during the deep stages of anaesthesia. Thus Edwards *et al*[11] found no case of the undoubtedly genuine idiopathic variety among 16 cases in which the anaesthetist recorded that bronchospasm occurred during anaesthesia and played an important role in the subsequent death of the patient.

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ADDENDUM

Extracts from the detailed but largely non-contributory autopsy report are as follows: 'Section of the specimen of lung shows the presence of an acute fibrinous pleurisy, marked congestion and oedema, hyaline membrane formation, numerous pigmented and unpigmented alveolar phagocytes, a focus of acute inflammation and some metaplasia of the epithelium of the respiratory bronchioles and ducts . . . marked curling of the epiglottis . . . small foci of pyelonephritis with a granular cast . . . moderate fatty changes in the liver . . . bruised myocardium . . . fibrinous pericarditis . . . no metastases . . .'

In the brain nothing was found, except, on histological examination, 'some extravasation of blood into the perivascular spaces.'

THE 'MEDICAL AID SOCIETY OF SOUTH AFRICA'

A letter dealing with the relations existing between doctors and the 'Medical Aid Society of South Africa' appears in the Correspondence Column of this issue of the *Journal*.

Members of the Association, especially those in the Cape Western Branch in whose area the Society appears to be operating, are urged to read this letter carefully and, for the present, to have no dealings with the Society whatsoever. There are several cogent reasons for this.

In the first place, the Society is still in negotiation with the Cape Western Branch of the Association and has not yet satisfied the requirements for recognition as a benefit society by the Association. Until this recognition is granted, members would be doing themselves, and the Association, harm by joining the panel of the Society.

Secondly, the name of the Society is misleading. It is not a 'medical aid' society as we understand the term, but a benefit society and, until its name is altered, confusion is likely to be present in the minds of doctors and the public alike.

Thirdly, it is a condition of their recognition that benefit societies will cater only for persons earning up to £750 *per annum* (with dependants) and up to £400 *per annum* (without dependants), with the proviso that not more than 10% of members of the society may earn up to £1,750 *per annum*. The Medical Aid Society of South Africa appears to be open to all members of the public earning up to £2,500 *per annum*.

Fourthly, the circular letter quoted by our correspondent merits serious study. If members of the Association comply with the request therein to submit lists of their patients for approval as members of the Society, they may well become party to an undertaking of which the South African Medical and Dental Council may take cognizance, whatever the sponsors of the Society may say to the contrary.

The Council of the Cape Western Branch is pursuing the matter vigorously, and hopes to have the situation clarified as soon as possible; until such time it is trusted that members will have the good sense not to become committed in any way to a course of action which may have grave professional results for them.

VAN DIE REDAKSIE : EDITORIAL

WEERSPANNIGE ASMATIESE BRONGIALE AFSLUITING EN GEKONTROLEERDE ASEMHALING

Sedert die tyd van Hippocrates is die term asma, of moeilike asemhaling, al bekend en dit was gebruik om enige soort dispnee aan te dui totdat Laennec die gebruik van die term uiteindelik beperk het tot siektes van die longe. Spain en Kaufman[1] het die oorspronklike waarnemings van Laennec en Rokitansky onlangs weer herhaal, naamlik dat die grondliggende letsel van chroniese pulmonale emfiseem die teenwoordigheid is van obstruksie in die endlugpypies, en dat dit nie 'n primêre verandering in die wande van die longblasies is soos wat ander werkers meen nie. Pasiënte met sogenaamde ‚intrinsieke' asma word in die Verenigde State as basies asmaties beskou alhoewel spesifieke allergene nie aangetoon kan word nie. In Brittanje word hierdie pasiënte as brongities beskou aangesien hul simptome vererger word deur dieselfde omstandighede wat brongitis vererger. Die hoofkenmerke van die asmatiese toestand is lugpypkramp en oortollige slymerige speeksel — altwee waarvan vererger word deur infeksies van die lugweë, die besoedeling van die lug, en ongunstige weersomstandighede.[2] Alhoewel dit welbekend is dat rook prikkeling veroorsaak van die keelholte, die larinks en die lugpype, is dit nie nodig om hierdie toestand as 'n aparte sindroom[3] te omskryf nie. Wat egter wel seker is, is dat die gevolge van siektetoestande van die lugweë meer opvallend is by persone wat baie rook en wat in nywerheidsgebiede woon of wat sekere soorte werk doen wat hulle blootstel aan stof, soos byvoorbeeld in die myne.[4]

Dit is dus nie te verwonder nie dat lugpypkramp kan ontstaan as 'n vreemde voorwerp soos 'n endotrageale buis in die tragea geplaas word nie. Die gevalleverslag wat ons in hierdie uitgawe van die *Tydskrif* plaas (p. 703) het egter opvallende kenmerke. Eenstens, die lugpypkramp het verhoed dat daar enige uitsetting van die bors plaasvind met positiewe druk in die lugweg. Hierdie feit ondersteun nie die bepalende rol van taai slym as die uiteindelike oorsaak van verstikking nie. Broom[5] het pas 'n verslag gepubliseer van twee gevalle in status asthmaticus wat sterwend was ten spyte van die gebruik van steroïde middels, en met fiksasie van die bors. Hierdie gevalle is suksesvol behandel met volgehoue onderbroke positiewedruk asemhaling onder narkose, maar met die byvoeging van suksametonium, 'n verslapmiddel van willekeurige spiere wat ook verwyding van die lugpype veroorsaak.[6] Dus, alhoewel die meeste, indien nie al die middels wat in die geval wat van Johannesburg af gerapporteer is, kragtige verwyding van die lugpype teweegbring, veral halotaan[7] en eter, lyk dit tog verstandig om aan te toon dat die ou gevestigde gebruik om atropien en plaaslike narkose as 'n roetine aan te wend vir endotrageale intubasie by algemene narkose, nodig is.

Intussen moet die waarde van gekontroleerde asemhaling in 'n hele aantal siektes nie misgekyk word nie. In wat Fitts[8] as sy moeilikste geval van cor pulmonale en lugpypkramp beskryf, is gekontroleerde asemhaling gebruik in narkose met tiopentoon wat voorafgegaan is deur omnopon en skopolamien met die byvoeging van flaxedil. Hierdie pasiënt het dus 'n goeie tydjie van vrystelling van sy lyding gehad en dit is aangetoon dat dit nie sy lewe in gevaar gestel het soos vroeër gemeen is nie. Per slot van rekening, eenvoudige fisiologiese (funksionele) ooruitsetting van die longblasies sal nie die spesifieke anatomiese en fisiologiese veranderings veroorsaak wat saamhang met chroniese pulmonale emfiseem nie. Hierdie feit verklaar waarom emfiseem nie so dikwels voorkom by spelers van windinstrumente en glasblasers nie.[9]

Die waarde van gekontroleerde asemhaling word vandag heeltemal aanvaar wat betref die behandeling van emfiseem waar die sogenaamde sentrogeniese dryfkrag van asemhaling, wat gewoonlik sensitief is vir koolstofdioksied, tydelik buite werking gestel is deur vergiftiging met koolstofdioksied, en waar opheffing van die chemo-refleksiewe dryfkrag deur die toediening van suurstof tot apnee lei. Hierdie sindroom is onlangs beskryf in miksedeemkoma[12] en dit kan verwag word in gevalle van hepatiese koma en veral in gevalle van barbituurvergiftiging. Gekontroleerde asemhaling, met of sonder die toevoeging van 'n spierverslapmiddel, is met groot sukses gebruik by die behandeling van tetanus, poliomiëlitis, verstikking van die pasgeborene (met sekere voorbehoude),[13] penisillienanafilakse,[10] en die ingestampte bors[11] en by ander ongelukke waar lewens afhanklik is van die tydige instelling van die een of ander vorm van kunsmatige asemhaling. In daardie uitsonderlike gevalle van volledige fiksasie van die bors ten spyte van gekontroleerde asemhaling, wat onderneem word deur 'n lugweg wat skynbaar oop is, moet spoeling met tripsien bepaald uitgetoets word, met die voorbehoud egter dat perifere arteriële kloppings nog vasgestel kan word. Tripsien, 50 mg. (van die kalsium sout) in 10 ml. fisiologiese soutoplossing, word in die endotrageale buis afgespoel en een minuut later word dit weer uitgesuig. In die afwesigheid van waarneembare sirkulasie bied 'n torakotomie wat dadelik uitgevoer word die enigste hoop op opwekking.

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INTRACTABLE ASTHMATIC BRONCHIAL OCCLUSION AND CONTROLLED RESPIRATION

The term asthma, or difficult breathing, dates at least from the time of Hippocrates and was used to denote dyspnoea from any cause until Laennec eventually restricted its use to diseases of the lungs. Spain and Kaufman[1] recently reiterated the original observations of Laennec and Rokitansky that the basic lesion of chronic pulmonary emphysema is the presence of obstruction in the terminal bronchioles, and not a primary change in the alveolar walls as has been suggested by other workers. Patients with so-called 'intrinsic' asthma are regarded as basically asthmatic in the United States, although specific allergens cannot be demonstrated. In Britain these patients are called bronchitics because their symptoms are aggravated by the same agents that aggravate bronchitis. The principal features of the asthmatic condition are chronic bronchospasm and excessive mucoid sputum, both of which are aggravated by respiratory infections, air pollution, and adverse weather.[2] While smoking is well-recognized as a pharyngeal, laryngeal, and bronchial irritant, it is perhaps not justified to refer to the irritation caused by smoking in terms of a separate syndrome.[3] What is certain, however, is that the effects of these illnesses are probably more marked in those who are heavy smokers or who live in an industrial environment or who work in certain occupations where they are exposed to dust, such as in mines.[4]

And so it is perhaps not surprising that bronchospasm may appear when a foreign body the size of an endotracheal tube is placed in the trachea. The case report which is published on p. 703 of this issue of the *Journal* appears to contain notable features, especially that the bronchial spasm allowed no chest expansion on positive pressure in the airway. This fact does not support a predominant or even significant rôle for viscid mucus as the final cause of asphyxia. Broom[5] has just published a report on two patients with status asthmaticus, who were moribund despite steroids and had chest fixation. Both were successfully treated by continuous intermittent positive-pressure respiration under anaesthesia, but with the addition of suxamethonium, a voluntary-muscle relaxant with proved bronchodilator effect.[6]

Thus, although most if not all the drugs used in the case reported from Johannesburg are indeed potent bronchodilators, particularly halothane[7] and ether, it would appear wise to observe the time-honoured use of routine atropine and topical anaesthesia before endotracheal intubation during a general anaesthetic.

Meanwhile the value of controlled respiration in a variety of illnesses should not be overlooked. In what Fitts[8] describes as the most distressing case of cor pulmonale and bronchial spasm in his experience, controlled respiration was used after anaesthesia with thiopentone, preceded by omnopon and scopolamine, and with the addition of flaxedil. Thus this patient had a profitable rest from his misery, and it was shown that it did not endanger life as was previously thought. After all, simple physiological (functional) overdistention of the lung alveoli will not produce the definitive anatomical and physiological changes associated with chronic pulmonary emphysema. This fact explains the infrequency of emphysema among players of wind instruments, glass blowers, etc.[9]

The value of controlled respiration is today firmly established in the treatment of emphysema where the so-called centrogenic drive for respiration, normally sensitive to carbon dioxide, is temporarily inactivated by carbon dioxide intoxication; and the suspension of the chemoreflex drive by oxygen administration results in apnoea. This syndrome has recently been described in myxoedema coma,[12] and can definitely be expected in cases of hepatic coma and particularly in cases of barbiturate poisoning. With or without the addition of a muscle relaxant, controlled respiration has been used with great success in tetanus, poliomyelitis, asphyxia neonatorum (with certain reservations),[13] penicillin anaphylaxis,[10] and the 'stove-in chest'[11] and in other accidents where lives depend on the timely institution of some form of artificial respiration. In those extremely rare cases of complete fixation of the chest, in spite of controlled respiration being attempted through an apparently clear airway to relaxed patients, trypsin lavage[5] should certainly be tried, provided some peripheral arterial pulsations can still be ascertained. Trypsin (calcium salt), 50 mg. in 10 ml. of physiological saline, is flushed down the endotracheal tube, and one minute later it is aspirated. But in the absence of a detectable circulation a thoracotomy, performed without any delay whatsoever, offers the only possible hope of resuscitation.

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FORTHCOMING INTERNATIONAL MEDICAL CONFERENCES

Second International Congress of Neurological Surgery. This Congress will be held in Washington, D.C., on 14 - 20 October 1961. The American Express Company have been appointed the official travel agents for this Congress. Intending visitors should write to Mr. Ross Kelly, American Express, Johannesburg, for further information.

SURGERY IN THE NEWBORN*

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(*Continued from the issue of the* Journal *for 13 August, p. 695*)

4. Operation

(*a*) *Timing*

With all neonatal anomalies it is axiomatic that the sooner the operation is performed the better.[6]

The most urgent emergencies are the diaphragmatic hernias, where a delay of even 5 minutes may make all the difference between success and failure. It is our policy to take these infants directly to the theatre on their arrival at the hospital, because past experience has shown that even the few extra minutes spent in taking them to the wards have been responsible for fatalities.

In large omphaloceles the urgency is almost as great, especially if previous rupture of the sac has taken place.

In babies suffering from intestinal obstruction relief of the obstruction is the primary consideration.[63] These cases are urgent because the increasing abdominal distension causes impairment of diaphragmatic excursion, limitation of respiratory exchange, dyspnoea, anoxia, and exhaustion. However, some time is profitably spent in rehydrating the infant and in decompressing the gastro-intestinal tract. In general a delay of a few hours is justifiable, except in cases where volvulus is suspected.[63]

In cases of oesophageal atresia there is less urgency, provided adequate precautions are taken against aspiration of secretions and vomitus.[63] Indeed, 12 hours spent in preparing the infant for surgery and controlling infection are often to the advantage of the patient. The same holds for rectal agenesis, although the period of preparation should not exceed 6 - 12 hours.

(*b*) *Anaesthesia*

Expert anaesthesia is probably the greatest single factor responsible for the reduction in the mortality of neonatal surgical emergencies within recent years.[4,34,55,59] Without it surgery in the newborn should not be undertaken.

The technique of paediatric anaesthesia cannot be discussed in this paper, but certain collateral factors which also concern the anaesthetist are important, including control of body temperature, maintenance of blood volume and tracheo-bronchial toilet:

(i) *Body temperature.* It has been noticed that small infants stand operation much better, are less easily shocked, and are more resistant to anoxia if the body temperature is lowered.[58] A drop in temperature to approximately 90°F has often greatly facilitated anaesthesia and post-operative recovery.[53] However, temperatures below this level, particularly in premature infants, may be injurious and predispose to sclerema. Anaesthesia depresses and renders inefficient the temperature-regulating mechanism of the body and may lead to an excessive rise or fall in body temperature.[65] Air-conditioning of operating theatres is now widely accepted as the logical solution to regulation of body temperature during anaesthesia. In our theatres, however, which are air-conditioned with an average temperature range of 70° - 75°F and a relative humidity of 70 - 75%, there is a progressive drop in body temperature with time, the mean drop in temperature in neonates being 5·9°F.[65]

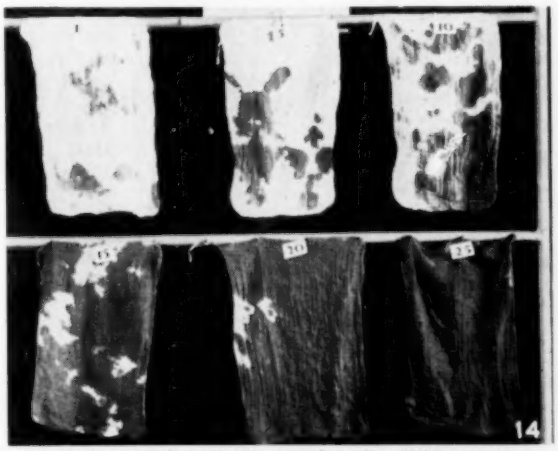

Fig. 14. Swabs 10″ × 14″, 2 layers of muslin. With experience it may be possible to assess the blood loss from the extent of staining of the swabs.

Fig. 14A. Scale for weighing used swabs to determine the amount of blood loss.

* Paper read at the Fourth Congress of the South African Paediatric Association (M.A.S.A.), Cape Town, 5 April 1960.

We therefore protect the infant's arms, legs, lateral abdominal wall, and upper chest, with cotton wool and place a well-wrapped hot-water bottle at 101°F under him. This reduces the mean fall to 3·2°F.[65]

(ii) *Blood volume.* During all surgical procedures body water is lost at variable rates in respiration, sweating, and evaporation from the wound. In long operations it is therefore necessary to provide intravenous fluids in the form of 5% dextrose in water at a rate of 5 ml. per lb. per hour.[59] This may be increased if there is excessive sweating. Replacement of blood loss is the most important problem in the operating theatre.[49,59,62] Although infants have a very high haemoglobin concentration at birth, blood loss during operation must be meticulously replaced; it should be remembered that the loss

TABLE III. BLOOD LOSS DURING NEONATAL SURGERY

Anomaly	*Absolute Loss (ml.)*	*% of Blood Volume*
Oesophageal atresia	35	14
Diaphragmatic hernia	25	10
Intestinal atresia	60	25
Rectal agenesis	60	25
Omphalocele	35	13

of 40 ml. of blood in a 5 lb. baby is equal to the loss of 1 litre in an adult.[49] The blood must be replaced volume for volume as it is being lost, and the only accurate method of assessing blood loss is to weigh swabs before and after use (Fig. 14a). (With experience visual estimation of blood on the swabs can be fairly accurate and is of use when dry swabs cannot be used—Fig. 14.) Average amounts of blood lost for various operations on our cases are given in Table III. Replacement is made directly into the intravenous needle (previously set up) by injecting from a syringe 5 - 10 ml. at a time at the rate of 5 ml. per minute. This is greatly facilitated by the use of a 3-way stopcock attached to the intravenous drip (Fig. 15).

(iii) *Tracheobronchial toilet.* At the completion of the operation tracheobronchial suction should be performed through the endotracheal tube. After ensuring that the pharynx is clear of secretions the endotracheal tube is removed. Great pains should be taken to ensure that the mouth and pharynx are clear of secretions at the end of anaesthesia. In addition, the stomach should be carefully emptied by suction applied to the nasogastric tube (which was passed pre-operatively). There should be no hesitation in performing bronchoscopy if these methods fail to clear the air passages adequately, or if there is evidence of persistent atelectasis or respiratory distress.

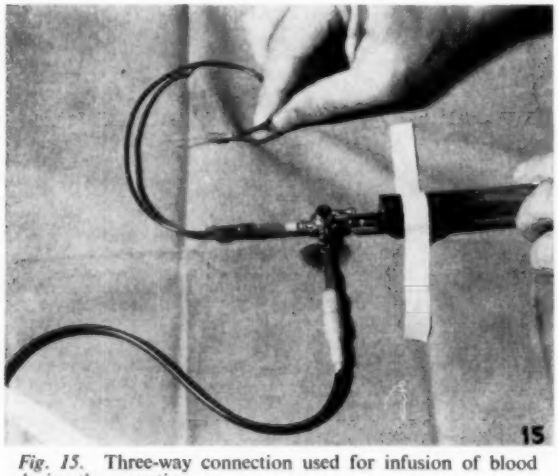

Fig. 15. Three-way connection used for infusion of blood during the operation.

(c) *Surgical Technique*

This can be acquired only by a system of apprenticeship and experience. Denis Browne has aptly remarked that 'the average competent general surgeon will have no greater success with neonatal bowel obstruction than he would have with brain tumours',[7] and Willis Potts asks, 'Is it quite fair that a surgeon who would not think of operating on a brain tumour or repairing a cleft palate should tackle a case of atresia of the rectum in a male infant with a rectovesical fistula, when he never before has seen such a case nor witnessed the operative repair?'[46]

It is not merely new and specialized techniques that have to be learnt, but rather the fineness of the technique and gentleness in handling the delicate tissues as well as familarity with the numerous variations of particular congenital defects that may occur. The surgeon must know how to reduce blood loss to an absolute minimum, and how to judge accurately the amount that has been lost. He must be capable of precision work when suturing the minute bowel, and he must develop a special skill in the dissection of small structures and in their accurate reconstruction. A great deal more could be said about the various surgical procedures themselves, and about the numerous practical hints which make for perfection;[46,50] suffice it to say that unless there are contra-indications such as prematurity, multiple malformations, respiratory complications, or infection, infants tolerate one operation of moderate length very well, provided the defect is fully corrected.

The surgeon who makes the first effort to correct a deformity has the unique opportunity of producing the most acceptable and lasting result. Repeated anaesthetics without adequate intervals between them and partially corrective surgical procedures are often doomed to failure.

A concerted effort should therefore be made to carry out the definitive procedure at the time of the first operation. This is always necessary in cases with diaphragmatic hernia or intestinal obstruction. In oesophageal atresia we prefer primary repair of the defect, but in babies weighing less than 4½ lb. it is safer to do a preliminary oesophagotomy and gastrostomy followed by secondary oesophagoplasty at the age of 3 - 6 months. Large omphaloceles must usually be repaired immediately, but in very small premature infants they may be treated conservatively (by applying 2% mercurochrome daily for 3 days and allowing the sac to shrink and become epithelized). In rectal agenesis many surgeons prefer immediate abdominoperineal reconstruction. In babies weighing less than 4½ lb., however, and in neglected cases, a preliminary colostomy followed by secondary reconstruction at a later date is safer.

Whatever the procedure, meticulous attention to detail is of paramount importance. Special attention should be paid to closure of the wound. Bulky dressings, encircling bandages, and adhesive plaster, all of which interfere with respiration, must be avoided. The wound can be adequately covered with water-tight collodion or nobecutane applied over a thin strip of gauze.

Particular care must be exercised in transferring the baby from the operating table back to the incubator, especially when underwater drains, etc. have been inserted. This is often the most critical phase of the infant's illness, yet at this moment, especially after a long and tedious operation, vigilance is apt to relax. This has led to many catastrophes in the past; chest drains have been pulled out, intravenous needles have been dislodged, bottles of blood have been dropped, infants have suddenly vomited and died of suffocation, etc.[47] The surgeon should therefore stand by until the baby is safely on his way to the recovery room, properly attended.

5. Post-operative Care

(*a*) *Constant Vigilance*

The need for keeping a close watch on the infant is even greater in the post-operative than the pre-operative period.[4] The child must be nursed in a fully equipped recovery room or neonatal surgical unit.[13,37,51,53,62] Round-the-clock 'specialling' by a senior registrar as well as by a competent nurse is essential. Recovery-room nurses must be specially trained to watch for the earliest signs of respiratory obstruction, laboured or shallow respiration, silent regurgitation, and circulatory collapse. Careful charts must be kept with recordings of temperature, pulse, respirations, fluid balance etc. On occasion we have even used a cardiac monitor.

The surgeon himself must accept his full responsibility, viz. the total care of the patient. He should visit the infant frequently (at least 4 times a day) to evaluate progress and check the treatment. He should supervise not only the initial intensive care, but also the later feeding regime; attend to complications such as pneumonia, gastro-enteritis, etc., and the hundred-and-one items which make infant care so exacting, yet fascinating.

A paediatrician should be constantly available in the more dignified position of super-consultant, just like the pathologist, radiologist and all other members of the team. In this way he can be of greater help than would be the case if he were asked to accept responsibilities of post-operative care with which he finds himself unfamiliar, and which he is not qualified to accept.

The remarks made under the heading 'adequate pre-operative management' in regard to minimal interference, isolation and control of environment, prevention of suffocation, gastro-intestinal decompression, hydration, blood transfusion, antibiotics, etc., are even more important in the post-operative care of these infants. Some of the more important factors which apply particularly to post-operative care require further elaboration.

(*b*) *Care of the Respiratory System*

Suffocation caused by aspiration of pharyngeal secretions or vomitus during the immediate post-operative period is without question the commonest cause of death in newborn infants submitted to surgery.[34,47] In a previous review I reported that 'aspiration pneumonia' was present in one-third of all the cases that died, and that in many others there was evidence of atelectasis or other respiratory complications.[32] Weakened infants, whether operated on or not, are liable to vomit, aspirate, and choke to death. This risk is greatly increased when there is a depressed cough reflex after anaesthesia. Very often such aspiration occurs with dramatic suddenness—an infant who has been doing well may be dead 5 minutes later. Constant attention to the respiratory system and measures directed at the prevention of inhalation of foreign material should therefore be regarded as the first priority in the care of these patients. We have constantly available an emergency respiratory set, consisting of laryngoscope, endotracheal tubes, infant bronchoscope, airways and tubing (Fig. 16) which is taken to the bedside of every small baby that has been operated upon.

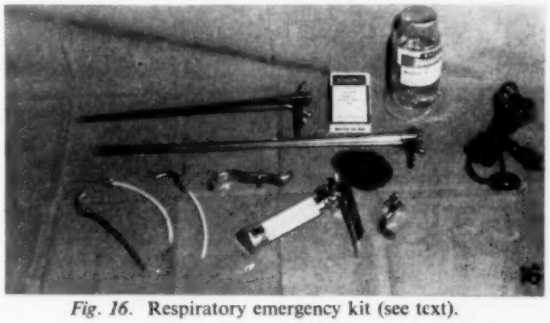

Fig. 16. Respiratory emergency kit (see text).

Infants who tend to vomit should be nursed on their side in 20° to 30° of Trendelenburg position and turned from side to side at intervals, unless they are very weak or premature.[62] A suction apparatus and emergency kit must be in readiness for the immediate removal of secretions or vomitus which may collect in the pharynx. During the first 24 - 48 hours, the pharynx must be cleared at frequent intervals ($\frac{1}{2}$ - 1 hour) by an experienced nurse or registrar.

An infant's laryngoscope with endotracheal tubes (0 - 00 Magill Portex) and special small bronchoscopes must be kept beside the incubator for use in emergencies.[9] (Routine or frequent laryngoscopy for tracheobronchial toilet is not recommended because of the dangers of trauma.)

When there are signs of pulmonary complications an atmosphere very rich in oxygen (60 - 80%) may be necessary. In addition, the humidity should be increased up to 100% if possible—this has been said to be the greatest single factor in preventing pneumonia,[53] but there is a limit to the degree to which environmental humidity can be raised without causing hyperpyrexia.[63]

Tracheotomy may be necessary in certain cases with respiratory distress. It is important to realize that this should be done *early*; that is to say, when it is first thought of and not as a last desperate measure to save the exhausted infant. Often, in retrospect, one wonders why tracheotomy was delayed so long.[47]

(*c*) *Intravenous Fluid Therapy*

It is in the administration of post-operative fluids to newborn infants that most mistakes have been made in the past. Even today considerable confusion about the appropriate therapy still exists in the minds of paediatricians and surgeons, and metabolic studies on the response of newborn infants to trauma have provided conflicting results.[11,21,52-54,63] It is therefore best in the first place to consider certain general principles of treatment. Briefly, these are as follows:

(i) Each patient must be considered individually, and no rule of thumb can be formulated for the infant who has undergone a major surgical procedure.[10]

(ii) Requirements of the infant are conditioned by basic needs, the pre-operative condition, the events during surgery, and abnormal post-operative losses.[11,15,62,63]

(iii) Therapy should be directed at 'preventing the patient from becoming moist'.[11] This entails the following: (*a*) Accurate assessment of the total fluid requirements for the day;[1,18,34,62,63] (*β*) ordering not more than half the day's requirements at a time;[1,18,34] (*γ*) specifying the rate of infusion in ml. per hour and drops per minute (1 ml. = 10 drops);[34] and (*δ*) ensuring that the infusion bottle contains not more than an amount equal to 10 ml. per lb. of the infant's weight (so that even rapid administration of the entire contents would not be fatal).[1,34]

(iv) Prevention of electrolyte imbalance and water intoxication by the judicious alternation of the various solutions required. This avoids the administration of large quantities of a single solution at one time. Excessive quantities of hypotonic solutions are particularly dangerous.[11,63,64]

(v) The fluid status must be checked by frequent clinical observation supplemented by appropriate laboratory tests if necessary.[1,18,34,62,63] Fluid and electrolyte calculations are no more than estimates and should, therefore, not be applied without being evaluated in the light of several daily clinical observations.[1] These include temperature, weight, intake and output record, and urine examination.

The subject of 'intravenous fluid therapy' (*c*) is continued under the headings (*d*), (*e*) and (*f*) now following:

(*d*) *Basic Requirements* (*Table IV*)

The newborn infant has excess body water, rapid fluid turnover, limited renal function, low plasma proteins and potassium, and high serum sodium and chlorides.[18,20] Many of these factors increase the danger of fluid overloading. Decreased bicarbonate and buffer activity set the stage for the second threat—that of acidosis.[30]

TABLE IV. DAILY MAINTENANCE REQUIREMENTS FOR NEWBORN INFANTS

	Amount per lb.	*Salt per lb.*	*Solutions per lb.*
Sodium	0·85 mEq.	50 mg. NaCl	5 ml. normal saline* or 7 ml. Darrow's solution*
Potassium	0·9 mEq.	70 mg. KCl	0·35 ml. 20% KCl†
Calcium	0·1 mEq.	20 mg. Cal gluconate	0·2 ml. 10% Ca gluconate
Protein	0·25 - 0·5 g.	—	5 ml. plasma‡ or 10 ml. travamin
Water	30 - 60 ml.	—	About 25 - 55 ml. 5% dextrose in water

* Preferably given as half-strength solutions (7 ml. Darrow's solution contains 20 mg. KCl).

† This must be diluted 80 times and the amount reduced to 0·25 ml. per lb. if Darrow's solution is used to provide sodium.

‡ The sodium content is equal to that in the same volume of normal saline (the sodium content of low-sodium travamin is negligible).

(i) WATER

At birth the body fluids of the infant constitute a larger proportion of body weight than in later life, and during the first 3 - 4 days of life losses by insensible routes and urine usually exceed intake.[20] The newborn infant tolerates such restricted intake very well.[1,63] Moreover, although the neonatal kidney can deal with basic amounts of water, urinary excretion during the 2nd and 3rd days of life is reduced and an excessive water load cannot be excreted.[63]

Comparatively small quantities of fluids are therefore required e.g. 30 ml. per lb. on the 1st day, 45 ml. per lb. on the 2nd day, and 60 ml. per lb. on the 3rd. The common belief that babies need 2½ oz. (80 ml.) per lb. per day does not apply to neonates, and in prematures the daily amount should be limited to 25 - 30 ml. per lb.[19,62,63]

Very soon, however, the water exchange in relation to body weight becomes 4 - 5 times as great as that of the adult.[58] This is mainly because the infant's body surface is relatively large, and insensible losses in proportion to body weight are therefore much greater than at any other period of life.[58,62] With this rapid turnover of fluid, therefore, the stage is set for dangerous and sudden departures either on the side of over-hydration or on that of dehydration. The former has been repeatedly emphasized, especially in connection with premature infants, and Gross[19] goes so far as to say, 'More babies have died of over-hydration than have died of dehydration; it is essential to realize that fluid therapy is important in saving life, but if overdone can rapidly produce a fatality'.

The great fear of drowning these babies has led to the practice of keeping infants 'on the dry side'.[19,52,53,62,63] In this, the pendulum has swung too far, because dehydration cannot be dismissed as completely harmless and may well result in a dangerous rise in the concentration of serum electrolytes and blood urea. It is now well recognized that the relatively immature kidney of a newborn infant shows a diminished capacity for conserving water. Although perfectly capable of diluting the urine, it fails to concentrate it. Furthermore, dehydration leads to a more rapid and a greater deterioration of renal function in the newborn than in older subjects.[64] Adequate amounts of fluid to relieve dehydration must therefore be given.

Additional mistakes have been made because infants have been regarded as miniature adults and accordingly expected to show the same retention of water after trauma. Recent work has clearly shown that the volume of urine passed by a newborn infant after surgery is equal to that of normal infants or even greater, that is to say, the newborn's kidney is unable to conserve water post-operatively.[10] However, if the operation is performed within 2 - 3 days of birth the urine volume may remain low for several days longer than the usual 3 or 4 days.[12,30]

In view of this we try to 'prevent the infant from becoming moist' by giving the usual maintenance requirements of fluid post-operatively. This amounts to 1,000 - 1,500 ml. per square metre per day, or 30 - 60 ml. per lb. per day.[10] If the infant is operated upon within the first 4 days of life we give 30 ml. per lb. on the day of the operation, 45 ml. per lb. on the 1st post-operative day and 60 ml. per lb. thereafter. These amounts, however, are adjusted according to the infant's needs as determined by repeated clinical examination and measurement of the urinary output.

(ii) ELECTROLYTES

Because of his inability to concentrate urine effectively, the newborn infant has to 'wash out' waste products with relatively large quantities of water.[63] In addition, the renal clearances of sodium, potassium, chloride and urea are always low, even when plasma concentrations are raised.[63] The danger of excess saline or potassium administration is therefore obvious.[54]

On the other hand, although excretion of these ions is restricted in the newborn, it is not negligible and often continues unaltered despite changes in the state of hydration, concentration of the urine, and extrarenal losses.[10]

Recent metabolic studies have shown that there is no reduction in the urinary excretion of sodium chloride after surgery.[10] The neonatal kidney appears to be unable to conserve these ions even when there are large extrarenal losses.[10,11] Salt depletion will result if saline is withheld for 2 - 3 days. Post-operatively the infant must therefore be provided with his maintenance requirements of sodium chloride, viz. about 50 mg. per lb. per day[59] (5 ml. of normal saline or 7 ml. of Darrow's solution per lb. per day). This amount should not be exceeded because of the danger of salt retention (which is increased if solutions of sodium salts without potassium are given[64]). On the other hand, lesser quantities may lead to serious hyponatraemia, and it is our practice to withhold sodium chloride on the day of the operation only.

Post-operative losses of potassium in the urine are increased, but excessive excretion is not maintained.[10] Although a small potassium deficit can usually be ignored because daily losses in the urine are small and soon corrected when the infant begins to take oral feeds,[11] prolonged deprivation of potassium may lead to serious hypokalaemia. This applies particularly to infants with intestinal obstruction who have become dehydrated and therefore depleted of potassium, because their bowel function is slow to recover after operation, and while ileus persists further losses increase the deficit.[64] It is therefore necessary to give the ordinary maintenance requirements of potassium post-operatively, i.e. 70 mg. per lb. per day (0·35 ml. of 20% potassium chloride per lb. per day). Newborn infants can excrete potassium freely[64]

but the intravenous administration of potassium immediately after operation may be dangerous because the concentration of potassium in the serum tends to rise precipitously if there is oliguria and if shock or anoxia occurs. It is our practice to give no potassium on the day of the operation, and to limit the amount on the 1st post-operative day to that contained in the Darrow's solution given to provide sodium chloride (i.e. 7 ml. of Darrow's per lb. per day, which contains 20 mg. of potassium chloride). Furthermore, when potassium is given intravenously its concentration should not exceed 35 mEq. per litre (i.e. 2·5 g. KCl per litre or a 0·25% solution of KCl).[63] If a 20% solution is being used, it must therefore be diluted at least 80 times. The rate of infusion must also be adjusted and should not exceed 27 mEq. of potassium (2 g. KCl) in 4 hours.[63]

It should not be forgotten that calcium and magnesium are both liable to be depleted by the same circumstances as lead to the loss of potassium and that the activity of calcium in extracellular fluid is diminished in alkalosis.[63] Sometimes intravenous calcium gluconate produces a striking response in patients with ileus.[63] Calcium should therefore be given post-operatively, especially if there are additional extrarenal fluid losses. The dose for infants is 20 mg. per lb. per day or 0·2 ml. of 10% calcium gluconate per lb. per day.[59]

(iii) CALORIES AND PROTEIN

An adequate supply of calories and proteins cannot be provided intravenously. It is therefore most desirable to resume oral feeding as soon as possible. A newborn infant requires 30 calories per lb. per day, and much more after operation. A 5% solution of dextrose in water (0·2 calories per ml.) can do no more than take the edge off starvation; 10% dextrose (0·4 calories per ml.) is liable to give rise to thrombophlebitis, and the routine use of ethyl alcohol (6 calories per ml.) is not justified in small infants. Fat emulsion (1·35 calories per ml.) is the best source of calories for intravenous use; up to 60 ml. of the emulsion per day appears to be metabolized satisfactorily by infants.[63]

Daily protein requirements amount to 0·5 g. per lb. Post-operatively there is an increase in nitrogen excretion[10] and up to 1·0 g. per lb. per day may be required to maintain nutrition. Unfortunately, intravenous plasma and protein hydrolysates are not of much value as sources of protein unless covered by an adequate quantity of non-protein calories.[63] Nevertheless, depleted protein stores may be partially replaced by infusion of these substances[63] and amounts of 10 ml. per lb. per day (0·5 g. of protein per lb. per day) are recommended.[59] Plasma tends to block the intravenous needle and it should therefore be given diluted to half or quarter strength.[64] It has the additional disadvantages that it contains 140 mEq. of sodium per litre. Amounts which provide sufficient protein will therefore result in an overload of sodium. Travamin is less effective than plasma[63] but it contains only negligible amounts of sodium (10 mEq. per litre) and potassium (20 mEq. per litre).

(iv) VITAMINS

Vitamins should be administered in adequate quantities during the post-operative period. This applies particularly to vitamins B and C which should be given in doses of 10 mg. of ascorbic acid per lb. per day and 1 ml. of vitamin-B complex per day throughout the period of parenteral therapy.[59]

(e) *Rehydration and Replacement Requirements*

(i) *Rehydration.* The fluid losses of moderately or severely dehydrated infants requiring urgent surgery cannot be entirely replenished pre-operatively.[20] Usually time will only permit the pre-operative replacement of half the deficit, and water conservation will continue post-operatively. The balance of the deficit should therefore be added to the maintenance requirements for the first 24 hours after operation. This balance is usually given in the form of half-strength Darrow's solution, but plain 5% dextrose in water or half-strength saline may be required, according to the pre-operative circumstances.[20]

(ii) *Replacement.* Replacement of fluids and electrolytes lost by vomiting, nasogastric suction, drainage tubes, ileostomy, etc., is obviously essential. Failure to replace may result in profound sodium or potassium depletion and acidosis.[63] Accurate measurement and charting of all abnormal losses is therefore obligatory (Fig. 17) and as a rule the losses are satisfactorily replaced with an equal volume of Darrow's solution.[20] When, however, losses are excessive, blood-chemistry studies and analysis of the fluid lost become necessary to act as guides to the type of replacement fluid to be given. Gross[19] has summed up the problem of intravenous fluid therapy most aptly in his statement: 'No problem encountered in the care of infants can be more perplexing at times than the determination of electrolyte requirements and the management of these in ways that are safe'. It is always difficult to decide how much water, minerals, protein and calories to give each infant during the neonatal period when the margins between enough and too much or too little are so small.[63] A clearly defined plan of treatment (Table V) is very necessary, but it is always wiser to prescribe the fluids

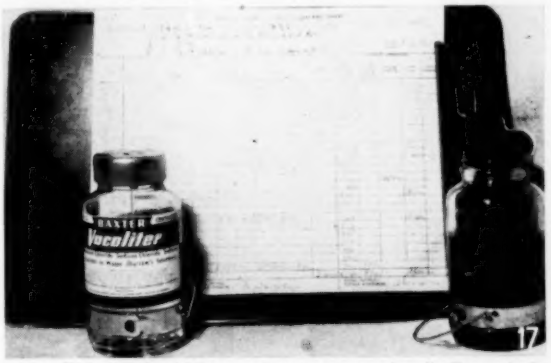

Fig. 17. Careful intake and output records of all surgical cases are kept.

TABLE V. GUIDE TO POST-OPERATIVE FLUID THERAPY IN NEWBORN INFANTS

	Maintenance Fluid	*Replacement Fluid*
Day of Operation	30 ml. per lb. 5% dextrose in water *only*	Darrow's solution equal to measured extra-renal losses
Day + 1	45 ml. per lb. Darrow's solution 7 ml. per lb; 10% Ca gluconate 0·2 ml. per lb; 5% dextrose in water—balance	ditto
Day + 2	60 ml. per lb. Darrow's solution 7 ml. per lb; 10% Ca gluconate 0·2 ml. per lb; 20% KCl 0·25 ml. per lb; 5% dextrose in water—balance	ditto
Day + 3 and onwards	60 ml. per lb. As on 2nd day, but using plasma 5 ml. per lb. or travamin 10 ml. per lb. instead of Darrow's on alternate days	ditto Also check serum electrolytes and carbon dioxide

N.B. On day of operation the remaining half of the estimated pre-operative deficit (if any) is also given as half-strength Darrow's solution.

for 8 or 12 hours rather than for a whole day,[56] and it is essential to check the fluid status several times a day by clinical observation, review of the intake and output charts, attention to the urinary output, and weight and laboratory tests if necessary. Our fluid calculations are regarded as no more than estimates and are never applied without repeated re-evaluation.

(f) Blood Transfusion

Provided blood loss has been meticulously replaced during the operation there is seldom any need for post-operative blood.[62] However, the haemoglobin concentration should be carefully watched; it should not be allowed to drop below 14·8 g.%.[10,53] Repeated small transfusions of 30 - 60 ml. of blood are often of great benefit. (Note that whole blood contains 70 mEq. of sodium per litre.)

Blood is preferably given as a single intravenous injection, by means of a syringe, in amounts not exceeding 10 ml. per lb., injected over a period of 15 - 30 minutes. A slow drip may be employed in non-urgent cases at a rate not exceeding 60 ml. per hour (10 drops per minute).[20]

(g) Treatment of Distension, Ileus and Obstruction

Marked abdominal distension usually accompanies intestinal obstruction, and occasionally it occurs with tracheo-oesophageal fistula. Some post-operative distension is common after abdominal operations, and if an anastomosis has been performed there is often temporary post-operative obstruction at the stoma. If there has been bacterial contamination of the peritoneum, and where gross biochemical shifts have occurred, paralytic ileus develops, which aggravates the abdominal distension.

Distension interferes with diaphragmatic movement and increases the risk of inhalation of vomitus. In addition, the danger of leakage from an anastomosis is increased, and there is interference with the return of normal intestinal tone and activity. The longer a state of ileus persists, the longer it takes to resume oral feeds and the greater is the risk of biochemical disturbance. Gastro-intestinal decompression is therefore very necessary.

Miller-Abbot and Cantor tubes are not practical. We use an infant-sized nasogastric plastic tube or a urethral catheter (number 8 - 12) with several holes cut in the part that rests in the stomach (Fig. 11). This is connected to a low-pressure suction apparatus and, further, is aspirated by syringe at frequent intervals. Unfortunately, a catheter of sufficient calibre to effect adequate decompression is liable to irritate the hypopharynx and epiglottis, producing oedema and introducing the danger of laryngeal obstruction. We therefore prefer not to leave the catheter *in situ* for long periods; it is our practice to leave it in the stomach from the time of admission until about 24 hours after operation. It is then removed and re-inserted every 3 - 4 hours according to the volume of the aspirate.

There is no objection to giving the infant small sips of glucose water or Darrow's solution at intervals to maintain patency of the tube and to keep the mouth clean.[47,62] The tube should also be irrigated every 2 hours with 5 - 10 ml. of Darrow's solution to prevent plugging — if fluid cannot be withdrawn the tube is probably kinked and must be readjusted.[62]

A method of avoiding the pharyngeal irritation caused by indwelling tubes is to perform a temporary gastrostomy, and apply suction drainage of this.[14] We have used this method with great success in an infant suffering from duodenal obstruction.[33] Gross[19] and others strongly recommend routine gastrostomy immediately after repair of oesophageal atresia, and through this the stomach is kept deflated for 24 - 36 hours after operation.

Decompression should be continued until abdominal distension abates, until normal bowel sounds return, and *until green material is no longer being aspirated.*[47] Throughout, charts of intake and output must be carefully kept.

Other measures which help to alleviate distension include the administration of oxygen in high concentration (90%), and (but only after normal peristalsis has returned) gentle dilation of the minute and collapsed colon by small saline enemas 2 - 3 times daily. Drugs like pitressin and prostigmin should not be used.

(h) Feeding

The sooner the infant can be fed by mouth the more rapidly will any chemical imbalance be corrected and wasted protein be replaced but, if oral feeding is commenced before the gastro-intestinal tract has fully recovered its tone, dangerous gastric dilatation or paralytic ileus may be precipitated. There is often a severe degree of mechanical obstruction for 2 - 3 days after gastro-enterostomy or intestinal anastomosis in infants. In such cases oral feeding will only aggravate distension and increase the risk of leakage from the suture line. Feeds are therefore started as soon as, but not before, the gastric aspirate is free from bile.

When anastomosis has been performed, oral feeds may have to be withheld for several days. A tube may be passed through the anastomosis into the distal bowel for the purpose of post-operative feeding. This tube should be brought out through a gastrostomy to obviate the risk of pharyngeal irritation. We have found this method of feeding of value in infants with upper intestinal atresia.

After primary oesophageal anastomosis for atresia, oral feeds increase the risk of leakage. Although many cases have survived early feeding, we have in other cases used a polythene tube or a small catheter (number 4) passed *via* the nose and on through the anastomosis into the stomach for post-operative feeding. This procedure has not led to any obvious untoward effect, and the catheter has been left *in situ* for 7 - 12 days. On the other hand, the tube is too small for adequate gastric decompression immediately after operation, it interferes with the swallowing of saliva and healing of the anastomosis, and carries some risk of pharyngeal irritation. Consequently it may be better to perform a gastrostomy for post-operative feeding. This has the advantage that it can be kept open until there is no further risk of stricture at the site of anastomosis. We have used this method in a number of cases; it is popular in many American clinics.[19,62]

When the infant looks alert and sucks his fist, and normal bowel activity has returned and there is no mechanical hindrance to the passage of food, oral feeding is started. It is important that the initial feeds should be small, to minimize the risk of regurgitation and aspiration pneumonia. We have found the following a useful schedule:

5% glucose solution or Darrow's ..	1 dr.	1	hourly	for	3	feeds
	2 „	2	„	„	3	„
Expressed breast milk	3 „	2	„	„	3	„
	4 „	2	„	„	3	„
	5 „	2	„	„	3	„
	6 „	2	„	„	3	„
	1 oz.	3	„	„	3	„
	1½ „	3	„	„	8	„

It is dangerous, however, to write specific orders for oral feeding until it has been established that the infant's stomach can empty normally. The schedule must be modified from case to case and in the early stages it is wise to supplement it with intravenous fluids. When 1½ oz. feeds are successfully retained, the quantity is increased to meet the infant's requirements.

When feeds are given *via* a transanastomotic or gastrostomy tube it is convenient to allow them to drip in slowly from a dropper apparatus over a period of 15 - 20 minutes.

In cases with oesophageal atresia, gastrostomy or tube feeding is usually started after 36 hours and continued for 8 - 10 days. Swallowing of saliva commences after 36 hours, and ½ dr. of penicillin solution (10,000 units) is allowed by mouth every few hours thereafter. After 8 - 10 days 2 dr. of 5% glucose are tried by mouth. If there is no difficulty in swallowing and no leakage, expressed breast milk is given orally in increasing amounts while the feeds per tube are decreased *pari passu*. If a nasal tube has been used it is removed as soon as the infant can swallow adequately. If a gastrostomy has been made it is wise to leave the tube *in situ* for 6 - 8 weeks lest any subsequent difficulty in swallowing develops.

Premature babies and some full-term infants who are too weak to suck properly should be fed by gavage.[19] A small nasogastric tube is passed into the stomach, air is aspirated, the formula allowed to run in slowly, and the tube withdrawn.

CONCLUSION

In conclusion it would be as well to emphasize again the great importance of attention to detail and the value of organized team work in this type of surgery. The constant guiding principle in the post-operative care of children should be to anticipate complications and to treat them effectively in the incipient stage, before a full-fledged complication has become established.

Finally may I quote Willis Potts of Chicago, who said in 1958: 'In this still rather new field of paediatric surgery our object is singularly simple—better treatment of the surgical ills of childhood and more thoughtful attention to the correction of congenital malformations with which it is the misfortune of some children to be born.[45,46] The infant "with no language but a cry" asks that we make available to him the benefits of increased knowledge of his surgical diseases'.[47]

This paper is based on experience gained by team-work, and I am deeply grateful to all members of the 'team' who have helped to make this type of surgery possible in Cape Town. In particular I wish to thank our senior anaesthetist, Dr. Arthur Bull, without whom this work could never have developed, and also Dr. John Hansen for constant advice and guidance in his role as 'super-consultant' on problems in fluid therapy and all 'medical' matters.

Messrs. R. van der Riet, A. Katz, W. Wilkie and B. Shandling have contributed a great deal, not only by assisting with the pre- and post-operative management, but also by operating on many of the infants, with excellent results. I would also like to thank Dr. David McKenzie for his cooperation in providing a 24-hour-a-day pathological service; Dr. E. van der Burgh for his willing assistance with the radiological aspects; and all the other consultants who have been of assistance.

Last but not least, there are the resident medical staff and nursing staff. On them has depended the ultimate success of all the work, and they have stood up to the responsible task in a most admirable manner. Senior registrars never hesitated to 'special' the babies 'round the clock', and during busy periods often went without sleep for days on end. The ward sisters remained on duty long after their usual 'off-duty time' and provided first-class service despite almost insurmountable difficulties caused by shortage of nurses. It is difficult to thank them adequately, but they can at least share the reward which is greater than anything else in surgery, namely the satisfaction of having restored to health and many years of happiness these critically sick and deformed children.

My thanks are also due to Dr. J. Mostert, Superintendent of the Red Cross War Memorial Children's Hospital, for his cooperation and for permission to quote from the hospital records; to Mr. G. MacManus for the photography; to Mrs. P. Kottler for the diagrams; and to Miss R. E. Malan for assistance in preparing the manuscript.

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ADVERTISING IN RELATION TO THE PRACTICE OF MEDICINE

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This article consists mainly of a selection from the ethical decisions of the Council of the British Medical Association and the views of other leading authorities published in *Medical Ethics*,[1] edited by Maurice Davidson, M.D. (Oxon), F.R.C.P. (Lond.).

The following is a widely accepted definition of advertising: 'Any procedure under which publicity may obtain for a particular medical man an unfair advantage over his professional brethren is advertising'.

In the opinion of the Council of the British Medical Association the word 'advertising' must be taken in its broadest sense to include all those ways by which a person is made publicly known, either through his own action or through action taken by others without objection on his part, in a manner which can fairly be regarded as being for the purpose of obtaining patients, or promoting his own professional advantage, or as appearing to be for these purposes.

From the earliest times medical men have been concerned with problems of behaviour among themselves and between themselves and the public. Two thousand years ago Hippocrates, the 'Father of Medicine', advised medical men 'to avoid adopting, in order to gain a patient, luxurious headgear and elaborate perfume', and taught that medical men who advertise their prowess cheapen themselves and their profession by adopting the ways of what he called 'the business of the market-place'.

A professional code of conduct is not immutable. It must be adjusted to the changing concepts of the times. This implies not a lowering of standards, but that, from time to time a profession must review its code to adjust it to the age, leaving intact those fundamental standards of moral integrity which are the basis of all professional practice.

During past centuries the profession of medicine has continued to review its code, but in the light of experience it has hardened rather than relaxed its attitude towards advertising. The introduction of radio and television has emphasized the importance of adhering to its ethical rules in relation to advertising.

In 1934 the General Medical Council of Great Britain, while expressing no views on the desirability of broadcasting on medical or public-health subjects, stated that 'in the public interest registered medical practitioners should broadcast anonymously'. The policy of the British Medical Association is the same. It stated in 1953 that unless a practitioner insists on anonymity he is offending against the ethical principles of his profession and placing himself in danger of being accused of violating the Warning Notice of the General Medical Council and exposing himself to the risk of having his name struck off the Medical Register.

A further example of how the profession continues to review its code is found in the declaration of the Council of the British Medical Association on the subject of broadcasting by full-time officials and others not in private practice. In the past it had been held that a whole-time public health official, or a whole-time clinical professor, could address the public under his own name without detriment to his colleagues or the public. In 1956, after an exhaustive examination of the matter, the Council stated that it was firmly of the opinion that a medical man, whatever the nature of his employment, may, by broadcasting under his own name, gain an unfair professional advantage, and by so doing may act contrary to the public interest. Experience had shown that a whole-time medical officer of health who had broadcast under his own name, would by this publicity gain an unfair professional advantage over his colleagues in competition for public appointments made by lay health authorities; and that the whole-time clinician might gain a similar advantage in the competition for appointments or by resigning from his appointment and entering private practice.

In its report on indirect methods of advertising, recently sent by the Council of the British Medical Association to all members in the UK, it was stated that it was the recognized duty of a medical man as a citizen to take his share in public life, and to hold public office should he so desire, but it was essential that he should not use his public office as a means of advertising himself as a doctor.

In South Africa both the medical and dental professions have questioned the propriety of the use by clinical professors or ex-professors of universities of the title 'professor' while in active competitive private practice. The Federal Council of the Medical Association of South Africa has resolved that the title 'professor' should only be retained by the retired occupant of a chair at a university if he has retired from the active practice of his profession. The resolution of the Dental Association of South Africa reads as follows: 'As the use of the title "professor" in private practice could react to the advantage of the practitioner concerned, the Association is entirely opposed to a practitioner holding a professorial appointment using such title in his private practice'.

While recognizing that public education on selected health matters is eminently desirable, the British Medical Association advises its members, approached for this purpose, to insist on anonymity. They also suggest that there is a special duty upon practitioners of established position and authority to observe the ethical rules of the profession, for their example must necessarily influence the actions of their less recognized colleagues. After making all allowances for those methods of publicity for which there may be some justification, there remain many instances which may be regarded as objectionable. The British Medical Association is convinced that in taking up an attitude of determined opposition to undesirable methods of publicity it is acting in the best interests of the public as well as of the medical profession.

Advertising by the profession in general would certainly destroy those traditions of dignity and self-respect which have helped to give the medical profession its high status. The British Medical Association therefore draws the attention of the profession to the dangers of these objectionable methods, and stresses the need for every member of the profession to offer a firm resistance to them.

The British lay press described the warning from the British Medical Association, which was sent out to 60,000 doctors, as the 'stiffest ever'. It is interpreted to mean that when new medical advances are made, or new types of surgery performed, those responsible must remain anonymous. It will be taboo in future for surgeons on the Council of a Royal College to appear on television, as they have in the past, to raise funds for their College. Neither will there be any more press conferences about doctors and surgeons going abroad to demonstrate their methods to foreign doctors.

It is generally accepted by the profession that a medical man gains his reputation for excellence in this or that respect before the bar of professional judgment, and by publishing articles in the medical press or books on his work, to be read and criticized by his colleagues and peers. A shopkeeper can advertise; the doctor cannot do so, for no advertisement can be wholly honest, and the implied suggestion that the advertiser is offering something better than his professional colleagues is an offence against the spirit of mutual trust and forbearance that should prevail among the members of a profession.

The lay public is deeply interested in medical matters, and it is recognized that education of the public on selected health subjects is desirable. In order that authoritative addresses may be delivered by suitable medical practitioners the recognized procedure is for application to be made to the local Branch of the Medical Association, which will guarantee the authenticity of the individual approached to give the information required. The danger when an approach is made by the non-medical public direct to an individual doctor is that they are not in a position to assess whether that individual can talk with authority on the subject upon which information is required. Reliable information on public-health matters may also be obtained from those newspapers which employ responsible doctors as their medical correspondents. According to the traditions of these journals, the correspondents remain anonymous. The authority of the paper is the guarantee.

The question of medical advertising was recently dealt with in a leading article in the *British Medical Journal*[2] entitled 'Behaviour of the market-place', in which reference was made to a lecture entitled 'Profession or business?' delivered by Prof. J. Howard Means[3] at Harvard Medical School. Both of these stress the

danger that faces the profession today from undesirable methods of publicity. Professor Means stated: 'Medicine is showing an alarming tendency to slip from the plane of a profession into the behaviour-pattern of the market-place', and 'Organized medicine should abide corporately by its code of ethics as assiduously as it expects its individual members to do. Any double standard in this regard is intolerable'. He sees the great danger of the mass media (radio, etc.) to the doctor who is pushed into public writing or speaking by the institutions with which he is associated—hospitals, medical schools and so forth—which have money-raising campaigns under way and want to glamorize what they are doing for the advancement of medical science. He recognizes that some of the material used by the mass media for public education are excellent, but adds that some 'are dreadful'.

It appears to me that in South Africa we are solemnly pledged by the Declaration of Geneva and the International Code of Medical Ethics of the World Medical Association to maintain by all the means in our power the honour and noble traditions of the medical profession; and further that a special duty has been imposed upon the leaders of our profession, and especially members of the Medical Council, to take strong and positive action against any undesirable methods which may undermine the traditional ethics of medical practice. In the judgment, given in the Supreme Court of South Africa in the Groenewald case, the following appears: 'They (referring to members of the Medical and Dental Council) are the custodians of the honour and rectitude of the profession. It is left to them to say to what standard of honour the members of the profession should conform, and much depends on their opinion whether the standard of personal and professional honour of its members is a high one or not'.

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TREATMENT OF INCONTINENCE FOLLOWING REPAIR OF VESICO-VAGINAL FISTULAE

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Those gynaecologists who repair large numbers of vesico-vaginal fistulae will appreciate the frustration of finding the patient as wet after a successful closure of the fistula as before. This is partly due to damage to the bladder sphincter by the original sloughing process, and partly to the tough scar tissue uniting bladder to vagina, which prevents the bladder neck from closing properly.

Numerous methods have been used in correcting this defect, none of them satisfactory. The Marshall-Marchetti operation[1] (1949), which is so successful in other types of stress incontinence, fails because it cannot overcome the resistance of the scar tissue. In the occasional case where the whole vagina has sloughed away the anal sphincter can be used with success.[2] Sling operations[3,4] are liable to reopen the fistula.

In 18 cases I have found the operation described here to be a simple and satisfactory answer to this problem.

Two loops of chromic catgut are passed round the pubic rami by means of a long curved needle as indicated in the diagram. Each is tied tightly in the bed of a shallow vertical incision over the healed fistula, as indicated. This has the effect of overcoming the resistance of the scar tissue to whatever sphincter action remains. It certainly gives excellent results. Obviously where gross destruction has occurred to the bladder neck and the patient is quite incontinent, complete control cannot be expected, but even in these cases, if the patient is finally left in a condition where she has a dry bed at night and only loses urine when coughing or straining, then she and her medical attendant have every reason for satisfaction.

This operation was used in 18 cases. In 14 of them the result was considered completely satisfactory and the patient was discharged. In 6 the operation was repeated because improvement was not considered sufficient, or because incontinence recurred. In 2 severe cases the operation was carried out 3 times, with a satisfactory final result. In 1 case the fistula reopened where the stitch passed over the scar, but this was successfully closed and continence was excellent.

There was no case which did not greatly benefit from the operation.

This operation was also tried for routine treatment of stress incontinence (apart from vesico-vaginal fistula) but while it gave good results it was thought to be too hazardous because of occasional haematoma formation in the space of Retzius, which required drainage. Non-absorbable suture material was originally tried but this caused trouble with sepsis and should not be used.

Summary. A simple and successful operation is described for the hitherto intractable incontinence which may follow repair of a vesico-vaginal fistula.

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4. Millin, T. and Read, C. (1950): *Modern Trends in Obstetrics and Gynaecology*, p. 697. London: Butterworth.

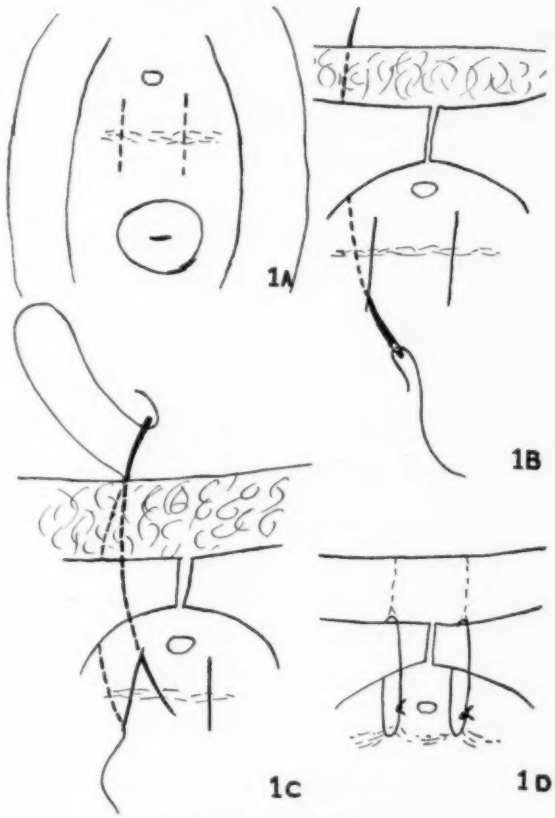

Fig. 1. Operation for incontinence from post-vaginovesical fistula.

A. The dotted lines show the site of the two incisions at level of bladder neck. The scar of the healed fistula is shown.

B. A 5-inch curved Bonney needle, threaded with No. 2 chromic catgut, is inserted at the posterior end of the incision and is passed behind the pubic bone to emerge through the skin. (The abdominal skin is stretched upwards with the hand to make the puncture as low as possible.)

C. The needle is reinserted in the same puncture mark and is passed anterior to the pubic bone to emerge at the upper end of the incision.

D. The procedure is repeated for the other incision and the sutures are tied tightly. Vaginal skin sutures are not needed.

SUID-AFRIKAANSE GENEESKUNDIGE EN TANDHEELKUNDIGE RAAD : SOUTH AFRICAN MEDICAL AND DENTAL COUNCIL

REËLS AANGAANDE DIE REGISTRASIE VAN SPESIALITEITE VAN GENEESHERE EN TANDARTSE, DIE VEREISTES WAARAAN VOLDOEN MOET WORD ALVORENS HULLE SPESIALITEITE GEREGISTREER KAN WORD, DIE VOORWAARDES WAT ENIGE PERSOON VAN SODANIGE VEREISTES VRYSTEL, EN DIE VOORWAARDES BETREFFENDE DIE BEHEER VAN PRAKTYKE VAN GENEESHERE EN TANDARTSE WIE SE SPESIALITEITE GEREGISTREER IS

Goewermentskennisgewing No. R. 1084, van die Departement van Gesondheid, word hieronder herhaal vir die inligting van lede van die Vereniging:

„Die Minister van Gesondheid het in die uitoefening van die bevoegdheid hom verleen by subartikel (4) van artikel *vier-en-negentig* van die Wet op Geneeshere, Tandartse en Aptekers, 1928 (Wet No. 13 van 1928), sy goedkeuring geheg aan die volgende wysigings van bogemelde reëls, opgestel deur die Suid-Afrikaanse Geneeskundige en Tandheelkundige Raad ingevolge paragraaf (*r*) van subartikel (2) van genoemde artikel en afgekondig by Goewermentskennisgewing No. R. 58 van 15 Januarie 1960:

„*(a)* Deur die bestaande reëls 3 en 4 te skrap en deur die volgende te vervang:

„3. Die volgende spesialiteite is ingevolge artikel *drie-en-dertig* van die Wet registreerbaar:

„A. *Geneeshere*

SPESIALITEIT	BENAMING
Chirurgie	Chirurg.
Interne geneeskunde	Internis.
Obstetrie en ginekologie of verloskunde en vrouesiektes	Obstetrikus en ginekoloog of spesialis in die verloskunde en vrouesiektes.
Narkose	Narkotiseur.
Dermatologie of huidsiektes	Dermatoloog of spesialis in huidsiektes.
Neurologie of siektes van die senuweestelsel	Neuroloog of spesialis in siektes van die senuweestelsel.
Neuro-chirurgie of chirurgie van die senuweestelsel	Neurochirurg, of spesialis in die chirurgie van die senuweestelsel.
Oftalmologie of oogsiektes	Oftalmoloog of spesialis in oogsiektes.
Ortopedie	Ortopediese chirurg.
Otorinolaringologie of oor-, neus- en keelsiektes	Otorinolaryngoloog of spesialis in oor-, neus- en keelsiektes.
Patologie	Patoloog.
Pediatrie of kindersiektes	Pediater of spesialis in kindersiektes.
Fisiese geneeskunde	Spesialis in die fisiese geneeskunde.
Plastiese chirurgie	Plastiekchirurg.
Psigiatrie of sielsiektes	Psigiater of spesialis in sielsiektes.
Diagnostiese radiologie	Diagnostiese radioloog.
Terapeutiese radiologie	Terapeutiese radioloog.
Torako-chirurgie	Torako-chirurg.
Urologie of siektes van die geslags-urinestelsel	Uroloog of spesialis in siektes van die geslags-urinestelsel.
Venerologie of veneriese siektes	Veneroloog of spesialis in veneriese siektes.

„B. *Tandartse*

Ortodonsie	Ortodontis.
Kaak-, gesigs- en mondchirurgie	Kaak-, gesigs- en mondchirurg."

„4. 'n Geneesheer of tandarts mag nie meer as een spesialiteit teencor sy naam geregistreer hê nie, of meer as een

RULES REGARDING THE REGISTRATION OF THE SPECIALITIES OF MEDICAL PRACTITIONERS AND DENTISTS, THE REQUIREMENTS TO BE SATISFIED BEFORE THEIR SPECIALITIES CAN BE REGISTERED, THE CONDITIONS WHICH SHALL EXEMPT ANY PERSON FROM SUCH REQUIREMENTS AND THE CONDITIONS GOVERNING THE PRACTICE OF MEDICAL PRACTITIONERS AND DENTISTS WHOSE SPECIALITIES HAVE BEEN REGISTERED

Government Notice No. R. 1084, from the Department of Health, is reproduced below for the information of members of the Association:

'The Minister of Health, in exercise of the powers conferred on him by sub-section (4) of section *ninety-four* of the Medical, Dental and Pharmacy Act, 1928 (Act No. 13 of 1928), has approved of the following amendments of the abovementioned rules, made by the South African Medical and Dental Council under paragraph (*r*) of sub-section (2) of the said section and published in Government Notice No. R. 58 of 15th January, 1960:

'*(a)* By the deletion of the present rules 3 and 4 and the substitution therefor of the following:

"3. The following specialities shall be registrable in terms of section *thirty-three* of the Act:

"A. *Medical Practitioners*

SPECIALITY	DESIGNATION
Surgery	Surgeon.
Medicine	Physician.
Obstetrics and gynaecology or midwifery and diseases of women	Obstetrician and gynaecologist or specialist in midwifery and diseases of women.
Anaesthetics	Anaesthetist.
Dermatology or diseases of the skin	Dermatologist or specialist in diseases of the skin.
Neurology or diseases of the nervous system	Neurologist or specialist in diseases of the nervous system.
Neurosurgery or surgery of the nervous system	Neurosurgeon or specialist in neurosurgery.
Ophthalmology or diseases of the eye	Ophthalmologist or specialist in diseases of the eye.
Orthopaedics	Orthopaedic surgeon.
Otorhinolaryngology or diseases of the ear, nose and throat	Otorhinolaryngologist or specialist in diseases of the ear, nose and throat.
Pathology	Pathologist.
Pediatrics or diseases of children	Pediatrician or specialist in diseases of children.
Physical medicine	Specialist in physical medicine.
Plastic surgery	Plastic surgeon.
Psychiatry or mental disorders	Psychiatrist or specialist in mental disorders.
Diagnostic radiology	Diagnostic radiologist.
Therapeutic radiology	Therapeutic radiologist.
Thoracic surgery	Thoracic surgeon.
Urology or diseases of the genito-urinary system	Urologist or specialist in genito-urinary diseases.
Venereology or venereal diseases	Venereologist or specialist in venereal diseases.

"B. *Dentists*

Orthodontics	Orthodontist.
Maxillo-facial and oral surgery	Maxillo-facial and oral surgeon."

"4. A medical practitioner or dentist may not have more than one speciality registered against his name or practise more than one speciality simultaneously except in the follow-

spesialiteit tegelyk beoefen nie, behalwe in die volgende gevalle waar die saamgekoppelde spesialiteite as verwante spesialiteite beskou word, en 'n geneesheer of tandarts (wat voldoen het aan die vereistes wat hieronder vasgestel is) kan een of beide van sodanige spesialiteite laat registreer, en in beide praktiseer:

SPESIALITEIT	BENAMING
Dermatologie of huidsiektes	Dermatoloog of spesialis in huidsiektes.
Venerologie of veneriese siektes	Venereloog of spesialis in veneriese siektes.
Neurologie of siektes van die senuweestelsel	Neuroloog of spesialis in siektes van die senuweestelsel.
Psigiatrie of sielsiektes	Psigiater of spesialis in sielsiektes.
Diagnostiese radiologie	Diagnostiese radioloog.
Terapeutiese radiologie	Terapeutiese radioloog."

'(*b*) Deur die opskrif bo aan reël 5 te skrap en deur die volgende nuwe opskrif te vervang:

"VEREISTES VIR DIE REGISTRASIE VAN 'N SPESIALITEIT DEUR GENEESHERE EN TANDARTSE"

'(*c*) Deur in reël 6 die woorde „of tandarts" in te voeg na die word „geneesheer" waar dit in die tweede en die vyfde reël voorkom.

'(*d*) Deur die opskrif „VEREISTES VIR DIE REGISTRASIE VAN 'N SPESIALITEIT DEUR 'N TANDARTS" te skrap waar dit bo aan die bestaande reël 7 voorkom.

'(*e*) Deur die bestaande reëls 6 en 7 onderskeidelik as reëls 7 en 6 te hernommer.'

ing cases in which the specialities bracketed together shall be regarded as associated specialities and a medical practitioner or dentist (on compliance with the conditions herinafter laid down) may have one or both such specialities registered and may practise both:

SPECIALITY	DESIGNATION
Dermatology or diseases of the skin	Dermatologist or specialist in diseases of the skin.
Venereology or venereal diseases	Venereologist or specialist in venereal diseases.
Neurology or diseases of the nervous system	Neurologist or specialist in diseases of the nervous system.
Psychiatry or mental disorders	Psychiatrist or specialist in mental disorders.
Diagnostic radiology	Diagnostic radiologist.
Therapeutic radiology	Therapeutic radiologist."

'(*b*) By the deletion of the heading to rule 5 and the substitution therefor of the following new heading:

"REQUIREMENTS FOR REGISTRATION OF A SPECIALITY BY MEDICAL PRACTITIONERS AND DENTISTS"

'(*c*) By the insertion in rule 6 of the words "or dentist" after the words "Medical Practitioner" where they appear in lines 3 and 6.

'(*d*) By the deletion of the heading to the existing rule 7, namely "REQUIREMENTS FOR REGISTRATION OF A SPECIALITY BY A DENTIST".

'(*e*) By re-numbering the present rules 6 and 7 as rules 7 and 6, respectively.'

VRAE BEANTWOORD : QUESTIONS ANSWERED

As a service to readers, we are reviving this feature in the *Journal*. Practitioners are invited to submit questions on specific or general subjects to the Editor, *South African Medical Journal*, P.O. Box 643, Cape Town.

Hierdie rubriek word nou weer, as 'n diens aan lesers, ingestel. Praktisyns word versoek om vrae van 'n algemene of besondere aard te stuur aan die Redakteur, *Suid-Afrikaanse Tydskrif vir Geneeskunde*, Posbus 643, Kaapstad.

BARRIER CREAMS

Q—*A patient of mine, who is a motor-mechanic, has developed an allergy to motor-oil. How effective are barrier creams in preventing dermatitis, and what would be the most suitable cream to use? How should it be applied?*

A—The ideal barrier cream, one which would be impenetrable to primary irritants and allergens, does not exist. Those available offer some protection against gross contamination by primary irritants but none against sensitizing agents whose action is not dependent on the quantity reaching the skin surface. Once a worker has become sensitized, barrier creams are worthless in preventing recurrences of allergic contact dermatitis.

A variety of barrier creams, some specially designed for specific purposes, are marketed and of recent years silicone preparations have become popular. Many observers consider vaseline to be as good a barrier as any.

In spite of their manifest deficiencies barrier creams are of value and should be used by workers handling certain known irritants or allergens. Apart from any protective action, barrier creams facilitate cleansing of the skin after work, an important point when it is considered that some workers may damage their skin by the use of industrial solvents such as petrol, paraffin or turpentine in the removal of adherent materials. Barrier creams must be applied to the skin before work and reapplied after each wash during working hours. Details concerning barrier creams can be obtained from the Workmens' Compensation Commissioner or reference may be made to such books as *Occupational Diseases of the Skin*.[1]

1. Schwartz, L., Tulipan, T. and Peck, F. M. (1948): *Occupational Diseases of the Skin*. London: Kimpton.

IN DIE VERBYGAAN : PASSING EVENTS

N.B. *Medical Library, University of Cape Town.* Will members please note that the telephone number of the Library has been changed to 55-4929.

* * *

Medical Graduates Association, University of the Witwatersrand. The Annual Alumni Dinner of the Medical Graduates Association of the University of the Witwatersrand will be held on Wednesday 31 August at the Auto Club, Johannesburg. The dinner will be in honour of the class of 1936 and their teachers as well as present members of the staff.

Dress will be formal and cocktails commence at 6.30 p.m. Wives of graduates are welcome. Tickets will be £1 10s. 0d. (including drinks). For booking tables please contact the Secretary, Medical Graduates Association, Medical School, Johannesburg (telephone 44-7040, mornings).

* * *

Hart-long Groep, Karl Bremer-hospitaal, Bellville, Kaap. Die volgende vergadering van die Hart-long Groep van die Karl Bremer-hospitaal sal gehou word op Woensdag, 24 Augustus 1960, om 8 nm. in die Groot-voorlesingsaal, Mediese-gebou, Karl Bremer-hospitaal. Die program is soos volg: ‚Enkele indrukke in verband met kardiologiese werk in die V.S.A.', deur prof. A. J. Brink; en ‚Die suurstofkoste van asemhaling', deur dr. H. P. Wassermann. Verversings sal na die tyd bedien word.

South African Institute for Medical Research, Johannesburg, Staff Scientific Meeting. The next meeting will be held on Monday 29 August at 5.10 p.m. in the Institute Lecture Theatre. The following films will be shown: (1) 'The iron cycle as revealed by the electron microscope', (2) 'A vitamin emerges', and (3) 'The exfoliative-cytologic method in diagnosis of gastric cancer'.

University of Cape Town and Association of Surgeons of South Africa (M.A.S.A.), Joint Lectures. The next lecture in this series will be held on Wednesday 24 August at 5.30 p.m. in the E-floor Lecture Theatre, Groote Schuur Hospital, Observatory, Cape. Drs. S. Scher, P. Helman and J. Terblanche will report on the current research being carried out in the experimental-surgery laboratory of the University of Cape Town. All members of the Medical Association are welcome to attend this lecture.

DIE LIEFDADIGHEIDSFONDS : THE BENEVOLENT FUND

Met dank word die volgende skenkings gedurende die maande Junie en Julie 1960 erken:

The following donations during June and July 1960 are gratefully acknowledged:

Geloftekaarte ter Nagedagtenis aan : Votive Cards in Memory of:

Dr. P. K. Morrison *by* Dr. W. G. McDavid; Hon. Mr. Justice J. E. de Villiers *by* Dr. V. Brink; Dr. R. Dillon Lee *by* Drs. Cunard and Alexander, Border Branch (M.A.S.A.), and Drs. Navid, McCabe and Bloch; Mr. Z. A. de Beer *by* Dr. V. Brink; Dr. C. V. Anderson *by* Dr. A. J. Orenstein; Mevr. B. van der Merwe *deur* Dr. J. W. van der Riet en Medfontein (Edms.) Bpk.; Dr. H. Ipp *by* The Sir Ernest Oppenheimer Research and Routine Unit; Mr. A. E. Laubscher *by* Mr. M. A. Lautré; and Mrs. D. P. Marais *by* Dr. V. Brink, Dr. P. W. J. Keet, and Dr. and Mrs. A. W. S. Sichel.

Totaal Ontvang van Geloftekaarte: Total Received from Votive Cards: £22 0s. 0d.

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Dr. B. T. Muller en familie *deur* Drs. C. V. du Toit, D. J. J. Bezuidenhout, A. G. M. Morrison, C. Albertyn, M. H. Wessels, R. N. Cullinan, P. le R. Pohl, R. J. Tahan, G. C. Borggreve, P. E. Dreyer, J. P. Theron, W. Grundell, J. J. Viljoen, en J. P. Yzelle.

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Total Received from Services Rendered: Totaal Ontvang vir Dienste Gelewer: £156 16s. 6d.

Skenkings : Donations:

Drs. J. S. M. Sililo, J. H. Labuschagne, S. H. Cohen, C. Gordon, C. G. Williams, J. L. Parker, A. H. Baxter, H. W. van Zuydam, J. P. Cronje, G. L. St. J. W.-Wriford, A. W. H. Cheyne, J. J. W. W. Bodenstein, D. A. C. Kelly, R. K. Beardmore, T. H. R. Bohlmann, K. M. Williams, R. L. Baikie, and L. Fernley.

	£	s.	d.
Totaal : Total	9	19	6
American College of Chest Physicians, (Northern Chapter)	5	5	0
Drs. Turton, Vosloo and Nienaber	5	0	0
Cape Western Branch (M.A.S.A.) collection box	3	2	0
Medical Wives Association — Port Elizabeth	11	5	0
Medical Wives Association — Port Elizabeth (proceeds of Annual Dance)	130	0	0
Cape Western Branch (M.A.S.A.) collection box	2	17	9
Drs. Fram, Gould, Bostock and Silansky	4	4	0
Drs. Harries, Kuschke and Hofmeyr	1	1	0
Dr. W. H. van Staden	2	2	0
Dr. E. Bligh	2	2	0
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Mr. J. D. Joubert — Being balance of amount collected from Prof. Crichton's ex-house-surgeons and others for 2 portraits of Professor Crichton	38	18	4
Totaal Skenkings : Total Donations	£220	0	7
Groot Totaal : Grand Total	£398	17	1

FARMASEUTIESE NUUS : PHARMACEUTICAL NEWS

NEW MEDICAL FILM

Messrs. Glaxo-Allenburys (S.A.) (Pty.) Ltd. have recently announced the addition of a new film to the range they already have available for loan to the medical profession and allied bodies. The new film is entitled *The Griseofulvin Story* and tells how the antibiotic griseofulvin was discovered and developed in Britain from 1939 - 1959. It is a colour, 16 mm. film with sound commentary and the running time is 21 minutes.

Other films available from Glaxo-Allenburys include *Thought for Food* — a nutrition research team plans a complete food; *A Vitamin Emerges* — how vitamin B_{12} was isolated and how research is increasing knowledge of this vitamin: and *Longer Life for BCG* — the contribution of research to the manufacture and standardization of freeze-dried BCG vaccine.

Glaxo-Allenburys will readily supply films on loan to interested practitioners. For details write to Messrs. Glaxo-Allenburys (S.A.) (Pty.) Ltd., P.O. Box 485, Germiston, Transvaal.

BOEKBESPREKINGS : BOOK REVIEWS

CLINICAL DERMATOLOGY

Clinical Dermatology for Students and Practitioners. By Harry M. Robinson, Jr., B.S., M.D. and Raymond C. V. Robinson, B.S., M.D., M.Sc. (Med.). Pp. xi + 242. 117 figures. $8.50 and 68s. Baltimore: The Williams and Wilkins Company. London: Baillière, Tindall & Cox Ltd. 1959.

The morphological approach to dermatology is not often encountered in text-books in English, although it is common in other languages. After an introduction on basic considerations the common, and some of the uncommon, dermatoses are listed according to the nature of their lesions, with short notes on diagnosis, histopathology, relationship to systemic disease, and treatment. The manner of presentation is attractive, the illustrations are clear and the methods of treatment suggested are completely up to date, but the initial good impression is damped by errors in spelling (not attributable to the proof-reader because some are repeated) and of fact too numerous to be ignored.

Pustular syphilis is not limited to negroes; parapsoriasis *en plaque* should read *parapsoriasis en plaques*; tar melanosis is not a synonym for melanosis of Riehl and poikiloderma of Civatte; milker's nodes heal long before 6 - 10 months; epidermolysis bullosa may have no relationship to any systemic disease in Maryland, but it often has elsewhere; kerion is no longer thought to be due to pyogenic infection complicating ringworm. A low point is reached with adenoma sebaceum, where Koenen is spelt Koenon and his periungual tumours are described as subungual; Balzer fares no better as Balzar and his tumours are said, incorrectly, to be unrelated to systemic disease; Hallopeau and Leredde escape mutilation by omission. Many dermatologists would check on their technique if they saw necrotic reactions to patch tests.

This well-planned little book cannot be recommended until these and other mistakes have been corrected. J.M.

ECOLOGY OF DISEASE

The Ecology of Human Disease. By Jacques M. May, M.D. Pp. xxiv + 327. $7.50. New York: MD Publications, Inc. 1959.

In this book, the first of 3 volumes, Dr. May, Medical Director of the American Geographical Society, attempts to bridge an important gap in our knowledge and understanding; for disease is almost invariably the result of a cumulative process with many actiological factors, and efficient treatment and prophylaxis are dependent on a knowledge of these factors.

In 34 pages May discusses the principles of human ecology, which is also dealt with by Marti-Ibañez in a 13-page foreword. The remaining 260 pages are devoted to discussions of the aetiology, and differences in various countries, of 10 specific transmissible (bacterial and viral) diseases. Amoebiasis, yaws and certain nematode infections are likewise discussed, and geographical features are described for each. Effects of disease on man and his environment are hardly considered and the ecological picture is in this respect incomplete. Scarlet fever, for instance, is discussed without any reference to the incidence of rheumatic fever or nephritis.

The use of a line of different thickness, or a dotted line, would have improved the maps of routes of the pandemics of cholera, and shading or stippling would have made the map on page 50 more readily intelligible. Some chapters have a summary, some have conclusions, but several do not give these features.

The book is well written. The South African reader will find references to Cluver, Gear, Elsdon-Dew and others. There is much that is new and fascinating in the holistic explanations of aetiology, and those with an interest in history will derive considerable satisfaction. B.J.K.

MATERIA MEDICA, PHARMACOLOGY AND THERAPEUTICS

Hale-White's Materia Medica Pharmacology and Therapeutics. 31st edition. By A. H. Douthwaite, M.D., F.R.C.P. (Lond.). Pp. viii + 525. 25s. net. London: J. & A. Churchill Ltd. 1959.

This text-book was edited by the original author in its first 19 editions from 1892 to 1927. The subsequent editions, from the 20th in 1931 to the new volume under review, have been revised and kept up to date by the present editor, who is a well-known senior physician at Guy's Hospital, London. The original style has been maintained. Small and large type, special emphasis by heavy type, and much subdivision of sections, have been used to make for easy reading, reference, and study. Drugs are considered in groups, but the arrangement would be more helpful if it conformed as far as possible with the practical needs of the physician, i.e. according to the main systems of the body affected by therapeutic agents. The unsatisfactory classification is shown for example in the following sequence: group 19 (acids) is followed by suramin and pentamidine isethionate (group 20), carbon dioxide, oxygen, and helium (group 21), iodides and other iodine compounds (group 22).

This edition has been completely revised. Much that is of importance to practitioner and student in the B.P. 1958 has been included. Many new synthetic drugs and antibiotics, newer pharmacological knowledge in general, and advances in rational therapeutics have been considered. This book will continue as one of the popular texts on drugs. N.S.

MEDICAL SERVICES OF THE RAF IN WORLD WAR II

Medical History of the Second World War. The Royal Air Force Medical Services. Volume III. *Campaigns.* Edited by S. C. Rexford-Welch, M.A., M.R.C.S., L.R.C.P., R.A.F. Pp. xxv + 730. 67 plates. 57 maps. 37 figures. 105s. net. London: Her Majesty's Stationery Office. 1958.

This volume deals with the medical services of the Royal Air Force in the Second World War.

Eleven campaigns are described fully, and since these took place in geographical areas varying from arctic snow to tropical heat, very different medical problems presented themselves, and solutions had to be found for them. The narrative takes the reader from the utter inadequacy in equipment and trained personnel that existed in 1939, to the highest standards of preventive and therapeutic medicine that prevailed at the end of the war. How this was achieved makes interesting and stimulating reading.

The problems specific to air warfare are discussed, e.g. flying stress and the psychological reactions of population, both civilian and servicemen, to sustained attack; so too are the methods used to combat these states. Throughout it is evident that the medical officer can be of great help only if he remembers to be a man first, an officer second and a doctor third.

Those interested in the science of public health and hygiene, particularly in tropical areas, will have nothing but admiration for those who were not overwhelmed by the difficulties which had to be faced and overcome.

Since this is a historical account, its style is factual, as one would expect, for therein lies its permanent value. Nevertheless, it gives me pleasure to record that it is very readable throughout, and in parts quite gripping and even exciting. R.L.F.

WORK AND THE HEART

Work and the Heart. Transactions of the First Conference on Work and the Heart. Edited by F. F. Rosenbaum, M.D. and E. L. Belknap, M.D. Pp. xxii + 537. Illustrations. $12.00. New York: Paul B. Hoeber, Inc. 1959.

This work consists of the transactions of the first Wisconsin Conference on 'Work and the heart'.

An evaluation of the present status in this field is made and it has brought out the many studies and observations that are already available, and also those that are still needed to solve problems in the field of work and the heart.

The various panels cover basic physiology, clinical physiology, pathology, work classification, workmen's compensation, and the outcome and prospects in relation to heart conditions. We thus find reports concerning the influence of environment upon the work load of the circulation, the effects of very strenuous athletic competition upon the heart, and the demands of ordinary factory employment. There is a discussion on the mechanisms causing coronary thrombosis. The results of careful evaluation of cardiac patients before their return to work are reported, and the fact

that patients with heart disease can work with safety is demonstrated.

A broad analysis is made of the current status of laws and procedures in this field.

The volume therefore makes a contribution in a wide field for laboratories, clinics, hospitals, rehabilitation units, industries, and courts of law. A.J.B.

WRITINGS OF SIR WILLIAM OSLER

A Way of Life and Selected Writings of Sir William Osler. 12 July 1849 to 29 December 1919. (Formerly titled *Selected Writings of Sir William Osler.*) Edited by a Committee of the Osler Club of London with the help of W. W. Francis, *et al.* Pp. xx + 278 + 16. 5 illustrations. $1.50. New York: Dover Publications, Inc. 1959.

The name of Sir William Osler is one of the great in medicine. His researches and position as an educator would alone have given him a place out of the ordinary, but in addition he was a renowned historian and essayist.

This book brings to the reader selections of his writings which show Osler as a humanist and man of letters. The choice covers many of his better-known studies and includes his 'Letters to my House Physicians' and 6 of his sketches of great physicians. Many will have read these essays and appreciated them when they appeared in 1951 as 'Selected Writings of Sir William Osler', published by the Oxford University Press. The present edition, produced by Dover Publications, is designed to bring the pleasure they give to a wider circle and at a price within the reach of a student. A.H.T.

BRIEWERUBRIEK : CORRESPONDENCE

INYANGA STUDENT MEDICAL PUBLICATION

To the Editor: I should like to bring the following matter to the attention of readers of the *Journal*, particularly those who are graduates of the Medical School of the University of Cape Town.

The 1960 issue of *Inyanga*, the annual student publication of the Faculty of Medicine, will be published and sold shortly. I feel that some of our postgraduates may wish to acquire copies of the journal, since it contains news of recent developments at the School. Articles of medical interest are written by students only. A postal order for 4s. 6d. will ensure post-free delivery of a copy of the journal as soon as it is published.

I should also like to appeal to our postgraduates and to other doctors, particularly in the Cape Town area, to support us by purchasing copies of the journal. In previous years we have not really been encouraged by our 'old boys' in the least. Last year only 5 doctors applied for copies of *Inyanga* in response to a similar letter of appeal in the *South African Medical Journal*. Your support and encouragement will be most welcome and appreciated this year.

Aaron Polliack
Circulation Manager
Inyanga
Medical Students' Council
Medical School
University of Cape Town
Observatory, Cape
1 August 1960

THE 'MEDICAL AID SOCIETY OF SOUTH AFRICA'

To the Editor: I should like to bring to the notice of members of the Medical Association in Cape Town and its environs a matter which I think calls for immediate action.

Most practitioners will remember an advertisement, which appeared in the lay press and subsequently in the *Journal*, from the 'Medical Aid Society of South Africa' with headquarters at Room 504, CTC Buildings, Plein Street, Cape Town. I believe that many general practitioners applied to be placed on this panel, while others asked for further information. Everyone who wrote received a circular giving details of the various *per caput*, *per annum* remunerations to doctors based on patients' income ranging from £200 to £2,500 *per annum*.

Soon after the first circular was received a second one was sent to all applicants advising them that they had now been placed on the panel of the Society, despite the fact that some practitioners had only asked for details and had not specifically requested to be placed on the panel. Many doctors in this group subsequently received telephone calls from an employee of the Society telling them that negotiations with the Medical Association were far advanced and that recognition was virtually a formality.

The latest circular received reads as follows:

'We have been approached by general practitioners with the object of getting the Society to contact those of their patients whom they would like to see enrolled as members.

'This proposal has been accepted by our Board and we propose to put it into practice immediately.

'Doctors are therefore advised that they may prepare lists of *bona fide* patients for interviewing by our representatives. In view of the additional administrative work involved and the care required in handling the individual interviews we would request that *not more than fifty names be submitted on the first occasion*.

'When the Society has completed its interviews, registrations and assessment of subscription rates of patients whose names have been forwarded, doctors will be informed that the Society is ready to receive additional names.

'Doctors need have no reservation on the relevant ethical question as our representatives have the strictest instructions not to mention, in their interviews, the name of any doctor, in recommendation or otherwise, nor to influence patients in this matter, directly or indirectly, in any other way.

'Any carelessness in this regard should at once be reported to the Society which will take the necessary steps to deal with the representative concerned.

'The preparation and submission of names of *bona fide* patients does not, of course, in any way affect the principle of free choice of doctor on which the Society is based.

'Doctors naturally have the fullest right to discuss the Society and to recommend membership to any of their *bona fide* patients.'

The second part of the circular sets out changes in rates, and steps taken by the Society to ensure recognition and approval by the Medical Association.

The circular continues: 'In this regard we would inform all doctors that the Society has undertaken to comply with all the demands of the Medical Association so as to ensure that the Society will be recognized and approved of by the Association'.

The following are some of the points arising from the above which, in my view, merit very serious consideration:

1. Notwithstanding the views expressed in the Society's circular, I feel it would be most unethical for doctors to submit lists of patients as possible members of this Society, since this would be something of which the South African Medical and Dental Council might well take cognizance.
2. From the discussion in the circular of a *per caput, per annum* system it can clearly be seen that this Society is a medical benefit society and not a 'medical aid society', a name that can lead to a lot of confusion in the minds of the public.
3. It is essential to know whether the Society has been registered under the Friendly Societies Act.
4. This Society has not been recognized by the Medical Association.
5. The fact that doctors have already been receiving cards inscribed with names of patients who wish to be on their panel, seems to indicate that this Society has been busy sending out canvassers among the public. This in itself cannot but lead to the most serious abuse and should not be tolerated.

There is no question but that the medical profession and particularly general practitioners should view this state of affairs with grave concern — it is a matter which should be dealt with urgently and vigorously.

Cape Town *'Concerned'*
9 August 1960

[See Editorial comment on p. 704 of this issue of the *Journal* — Editor.]